Food Store Air Conditioning . . . . . Pg. 30

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Contractor-Constructor Committee Proposes Calif. Bid Law Changes

LOS ANGELES—Bid procedure would be regulated, bid shopping and bid peddling would be illegal, and those practicing it would be disciplined by the registrar and Contractors State License Board, under proposals now before the construction industry of California affecting the bid-listing law for public work.

Subcontracting associations and Associated General Contractors chapters have the "report of the 10-man committee" which recommends legislation to:

1. Establish a "Code of Verifiable Procedure" in a new section of Article VII of the Business and Professions code.

2. Provide that violations would be cause for penalties against the state license the contractor must have to operate legally.

3. Provide the general or prime contractor must establish terms and make them available to the sub before he bids.

4. Require all sub bids be written and transmitted to generals at least 24 hours in advance of the prime bid opening in such a way "the written bids of themselves are unimpeachable evidence of time, price, and legal validity. This would rule out all means of transmission except telegraph."

5. Bids could be withdrawn by telegram up to 12 hours before opening but no substitute bids would be allowed after 24 hours before the opening.

6. Generals would be re-

(Continued on Page 16, Col. 1)

Report Breaks 3-Year Stalemate

LOS ANGELES — A stalemate has turned into a proposal for positive action.

Until talks began here this summer, there had been a "truce" in the legislative war between the Associate General Contractors and the Construction Industry Legislative Council representing subcontractors associations and builders exchanges.

Now the report of the 10-man committee, five from each side, proposes legislation setting up procedure for subcontractors bidding to generals.

Beginning in 1957 the CILC and AGC agreed to a "moratorium" on efforts to repeal or

(Continued on Page 17, Col. 3)

Urge AGA Change Standard For Rating Small Furnaces

DETROIT — The American Gas Association has been urged to change its standard testing pressure on smaller furnaces from .12 and .15 in. static pressure water gauge to .20 in. by the Better Heating & Cooling Bureau here.

George Asher, executive secretary of the BHCB, addressed a letter to R. V. Meyer, assistant director of the AGA requesting the change after the bureau discovered that warm air distribution systems are being designed in excess of the available external static pressure on furnaces of less than 100,000 Btuh input.

"The resultant installation of heating equipment connected to undersized distribution systems is detrimental to the warm air industry," Asher declared.

"We do not agree with the AGA nor the National Warm Air Heating & Air Conditioning Association," he continued, "when they advocate the use of low static pressures for these smaller units, as they do not apply satisfactorily to homes as they are being constructed today.

"The use of storm sashes and insulation has materially increased the size of the homes in which these small units are installed. Unless pressures greater than .12 and .15 in. are used, ducts become increasingly large; again, a detriment to the industry.

"Accordingly we urge the

(Continued on Page 39, Col. 1)

Carrier Bows 4 Loewy-Styled Room Unit Lines

KIAMESHA LAKE, N. Y.—Carrier Air Conditioning Co. unveiled to New York area dealers last week four lines of Raymond Loewy styled room air conditioners for 1961, including 115-volt models delivering up to 11,000 Btu.

The company said the four basic lines are: a "Ready-Mount" with sliding translucent wing panels in a compact 11-in.-deep cabinet; the "Sceptre" series, 14 in. deep and delivering up to 9,600 Btu; the "Viscount," 24-in. deep models with a top capacity of 15,000 Btu; and the "Imperial," a compact model delivering 20,000 Btu.

Citation beige and slate gray colors used throughout blend with any room decor, according to room air conditioner Sales Manager John R. Voigt. The Sceptre, Viscount, and Imperial series include four-way air deflection, two-speed fans, and exhaust and ventilation settings.

A major feature of the 1961

(Continued on Page 4, Col. 1)

FTC Charges Nibco Fixes Resale Prices for Mfr. Representatives

WASHINGTON, D. C.—Nibco, Inc., Elkhart, Ind., a manufacturer of valves, fittings, and related products used by plumbers and steamfitters, was charged recently by the Federal Trade Commission with illegally fixing and maintaining the resale prices of its products and with discriminating among its customers in granting promotional allowances.

According to the FTC's two-count complaint, Nibco sells its products nationally to many customers, including wholesalers and manufacturer's representatives. The latter are independent businessmen, who are under contract with Nibco and purchase from it for resale to wholesalers, the FTC said. They account for approximately 85% of the company's total sales, which exceed $20 million

(Continued on Page 39, Col. 2)

Next Week—Missile Air Conditioning

DETROIT—Missiles and rockets have claimed the public's attention as has no other scientific development in our history—including nuclear fission. The reasons are both practical and romantic — practical in that the existence of the Free World may depend on how well we develop and maintain a missile program for national defense, romantic in that rockets into space may unlock the secrets of the universe for us.

Air conditioning has played a vital role in the missiles and rockets program. If it might not be correct to say that without air conditioning missiles could not be launched, it is probably fair to surmise that without advanced types of air conditioning equipment our missiles would not be as far along in their development as they presently are.

The next (Sept. 19) issue of the NEWS will spotlight the role of air conditioning in the missiles program, to the extent that the information can be divulged within the restrictions imposed for reasons of national security. Readers should find the Sept. 19 issue not only interesting, but also informative in terms of techniques that can be applied to present and future commercial and industrial applications.

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Election Year Philosophy And Background

Who'll be the next President of the United States? That's an exciting question nowadays.

Few citizens realize how different the situation was in 1787. Then, at the Constitutional Convention, a hotly debated question was this:

Should we *have* a President?

Many of the delegates to that Constitutional Convention feared that a single Chief Executive could enjoy altogether too many chances to become a King.

They favored establishment of a three-man executive committee to carry out the will of Congress, rather than a One Man Show.

Most important reason why supporters of a Presidency finally won out probably was the assumption that George Washington—whom all the delegates knew and trusted—would get the job.

Pierce Butler, a delegate from South Carolina, wrote to a friend after the Convention was over:

"Entre nous, I do not believe that the executive powers would have been so great, had not many of the members cast their eyes toward General Washington as President, and shaped their ideas of the powers to be given a President by their opinions of his virtue."

Even so, not everybody was happy about the outcome.

Patriots Were Dubious

Patrick Henry, of "give me liberty or give me death" fame, was so opposed to a strong central government concept that he refused even to attend the Convention.

Pat derided the idea of a Presidency as "an awful squint toward monarchy."

To be historically accurate, in those parlous times, there were

(Continued on Page 24, Col. 1)

York-Shipley Wins Suit on 'York' Name, Borg-Warner To Appeal

CHICAGO — Federal Judge Michael L. Igoe ruled here recently that Borg-Warner Corp. should pay to York-Shipley, Inc. $2,280,000 damages, plus profits from its sales of furnaces and heating products, produced by York Div., Borg-Warner Corp., under the name and trade-mark "York."

In addition, Judge Igoe:

1. Ruled that York-Shipley is entitled to an injunction restraining Borg-Warner from making, advertising, or selling furnace or heating products under or in connection with any business, trade, division, or corporate name which includes the word "York," or under any trade-mark or identity using the word "York."

2. Directed York-Shipley to prepare a judgment order and present it in open court Sept. 14.

(Continued on Back Page, Col. 1)

NLRB Rules

By Not Giving Out-of-Towner Clearance, UA Forced Employer To Discriminate Against Him

DALLAS—By failing to give an out-of-town pipefitter the clearance he needed to go to work, a United Association local unlawfully encouraged membership in the local and caused his employer to discriminate against the pipefitter, National Labor Relations Board has ruled.

This is a violation of the National Labor Relations Act even without any agreement or arrangement with the employer, NLRB asserted in a case involving UA Local 100 and the Beard Plumbing Co., Dallas.

Charges were brought against Local 100 by O. W. Breland of Jefferson, Texas. Breland testified that at the invitation of his friend Howard Fry, job steward for Local 100, he came to Dallas to work for Beard on a project for Texas Instruments Co.—a trip of 180 miles.

On arrival, he reported to Local 100 where he was informed there was no work for him. However, he went to the Beard job site to see Fry. While there, he said, Beard hired him and sent him to the union hall to get his clearance.

On his return to the union hall, William Zea, business representative of the local refused to issue the clearance because he did not have a travel card from his home Local 301, and because, Zea claimed, Beard had not requested a clearance.

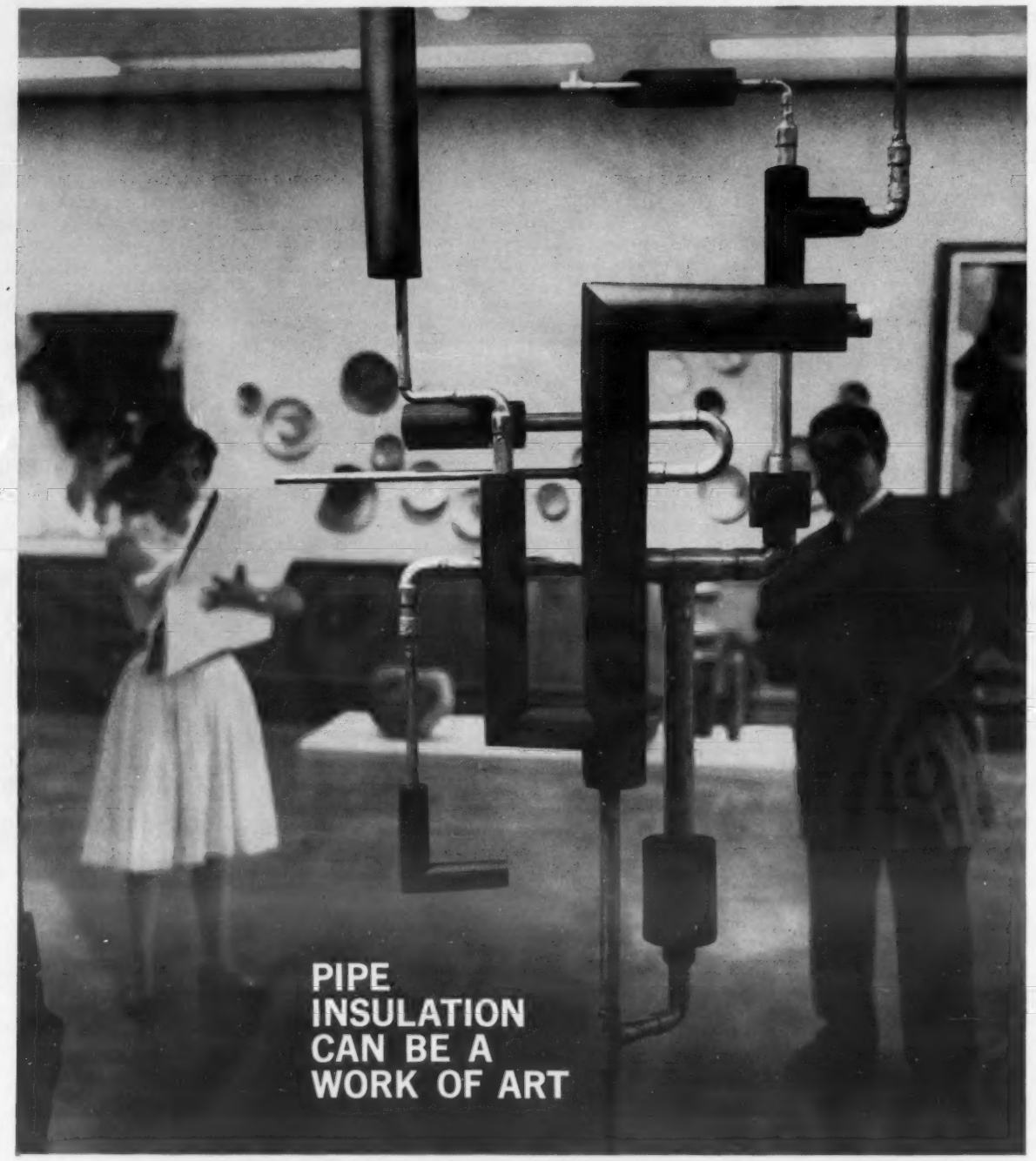
Breland reported back to Fry and Beard. Beard said it was up to Fry and the local. Fry said he would straighten the matter out and sent Breland home for his travel card. Breland obtained the travel card and returned.

Zea would still not give him a clearance because, he said, Beard had asked him not to refer any more men and because he had laid-off local members to place first. Breland claimed that he had already been hired, but Zea and Fry denied it.

Breland claimed that Fry had told him over the telephone that Fry and Beard had discussed the problem. Beard allegedly said that he could hire Breland without clearing through the local if he wanted to. But Fry allegedly advised him against this "because he was using union labor and making money under them."

Later, after filing his charges against the union, Breland again asked Beard for a job and Beard refused to hire him.

In his intermediate report, which the NLRB upheld, the trial examiner said, "in essence, the respondents (Local 100 and Zea) contend that the refusal to provide Breland with a work order cannot be considered as violative of Section 8(b)(2) (of the National Labor Relations Act) unless there was an existing hiring arrangement or practice requiring the issuance of such an order. I must reject this contention."



The job looks neater... goes faster with B.F.Goodrich insulation tubing

B.F.Goodrich insulation tubing makes the finished job look good enough to go on exhibition . . . *yet it takes 50% less time than the old-fashioned methods of insulating pipe.* It slips on straight or bent pipe as easily as a ring on your finger. If pipes are already connected, it can be slit, snapped on and cemented in no time. Fitting corners is no problem—you just slice off needed shape with a sharp knife and cement parts together.

This BFG tubing is made of tough, flexible cellular rubber that effectively insulates pipes carrying liquids ranging from −20°F. to 200°F. It doesn't rub off or crumble, comes in 6-foot lengths, many wall thicknesses. For full information, call your B.F.Goodrich distributor, or contact *The B.F.Goodrich Company, 180 Derby Place, Shelton, Connecticut.*

INSULATION TUBING BY B.F.Goodrich

J. M. Oberc, Detroit Wholesaler, Dies

DETROIT — J. M. Oberc, pioneer air conditioning and refrigeration supplies wholesaler, died Sept. 6 at the University of Michigan hospital at the age of 61. He had been stricken July 27 with a cerebral hemorrhage.

He formed J. M. Oberc, Inc. in 1933 to wholesale refrigeration supplies, and in 1935 was one of the founders of the Air Conditioning & Refrigeration Wholesalers association. Prior to that he had been with Kelvinator Corp. and at one time was secretary to the late George W. Mason, president of Kelvinator.

The Oberc firm was distributor at various times for some major lines of air conditioning and refrigeration equipment and Oberc was one of the most widely known men in the wholesaling side of the industry.

Perfection Reports

Home Heat Pump, Air Conditioning Sales Up 47%

CLEVELAND — Volume in residential air conditioning and heat pump products is up 47% in the first half of 1960 for Perfection, A. J. DeFino, Hupp Corp. vice president and general manager of Perfection Industries, declared recently.

"This is a record high," DeFino asserted, "and more than twice the increase reported for the industry as a whole."

The self-contained "Tuckaway" air conditioning line has increased in volume by 65% and heat pump volume is up 20%, he said. Remote air conditioning products have also shown increases, while the remote heat pumps, introduced last year, have had "remarkable" growth.

Heat pump sales, DeFino pointed out, run at a near constant rate the year around.

Growth in air conditioning and heat pump volume, he said, results from expanded distribution and continuous upgrading of distributor and dealer skills through application and service schools.

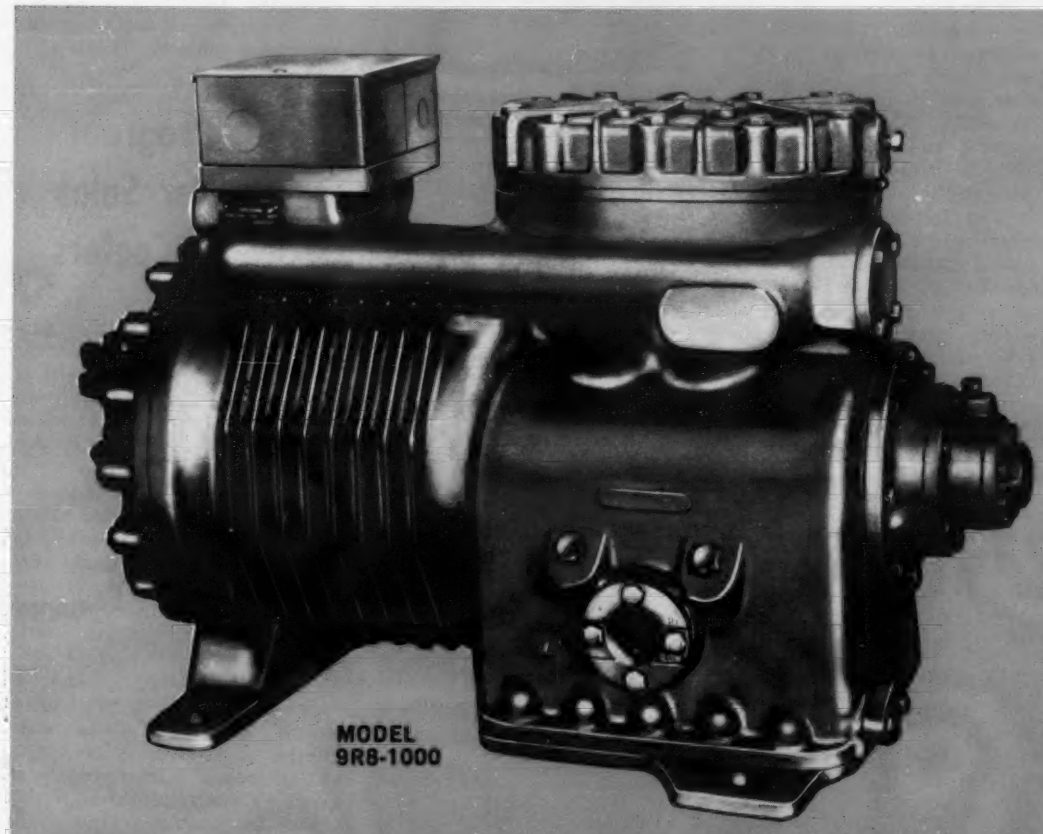
Furnace sales are equal to last year, with better than 60% of them top-of-the-line "Regulaire" models.

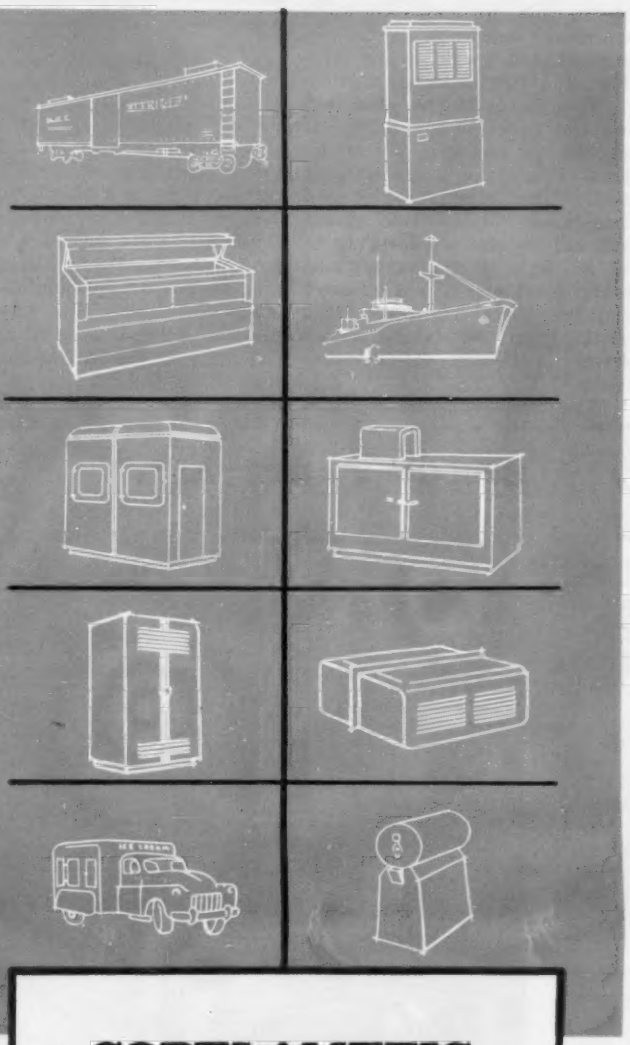
DeFino added that Perfection-Schwank infrared heating systems are now installed in more than 25,000 buildings.

Newest product introduced by Perfection is a refrigerated trailer whose body frame is a unitized sandwich of rigid insulation and fiber glass reinforced plastic skin in a seamless cube.

This, DeFino says, provides a reefer 1,500 to 3,000 lbs. lighter than aluminum or stainless steel with a 9% greater cargo carrying space. (See page 15, Aug. 15 issue of NEWS.)

To keep your customers satisfied Copeland has what it takes!





Copelametic... workhorse of the air conditioning and refrigeration industry

Satisfied customers are our most valuable asset and convincing proof that Copeland has what it takes.

Over the years, manufacturers and dealers have ordered and re-ordered the Copelametic Accessible Hermetic, mainstay of the Copeland line. They have found Copelametics provide the outstanding performance features and lasting dependability essential to the success of a product or an installation.

This enthusiastic acceptance has enabled us to produce Copelametics in growing numbers and for a wider variety of applications.

Today's Copelametic is basically the same, high quality motor-compressor introduced 21 years ago . . . relatively unchanged because the original design continues to meet the most exacting requirements. Years of service in the field have proved its suitability for all applications . . . high, commercial, low and extra-low.

Investigate the advantages of Copelametics for your products or installations. You'll find Copeland has what it takes.

COPELAMETIC FEATURES

- Complete accessibility to all working parts permitting on-the-job service and parts replacement.
- Positive lubrication systems.
- High output per watt-hour.
- No belts, seals or manual oiling, thus eliminating causes of 90% of motor-compressor failures.
- Statically and dynamically balanced rotating parts.

AVAILABLE in air-cooled, water-cooled and suction-cooled models. Including new four-cylinder and six-cylinder models, sizes range from ¼ H. P. through 30 H. P. Request Specification Sheet 5907.

SINCE 1918 **Copeland** REFRIGERATION CORPORATION, Sidney, Ohio

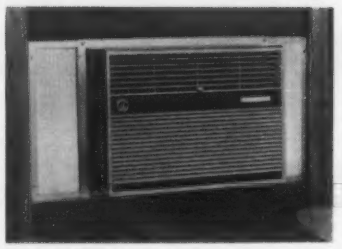
Carrier--

(Continued from Page 1, Col. 4)

models is that they are virtually rustproof for the life of the unit, Voigt claimed. Zinc or vinyl coated steel parts, liberal use of copper, aluminum, plastics, and baked enamel finishes insure this, he said. All units are easily removable for servicing without breaking the window seal, it was stated.

"The Ready-Mount, designed for the take-it-home buyer, is a 115-volt model delivering 5,600 Btu," the announcement said. "The aluminum framed translucent 'Mylar' side panels pull out to seal windows up to 40 in. wide. It has a reduced sound level and a single on-off and thermostat control located on the front. Not even a screwdriver is needed for installation.

"The Sceptre series packs a full capacity room model into



READY-MOUNT has sturdy aluminum-framed side panels of translucent Mylar which admits light. Cabinet is only 11 in. deep.

one of the most compact cabinets on the market. Its 115-lb weight and simple installation kit also made it a do-it-yourself item for many householders. An optional kit provides for through-the-wall mounting.

"Two 115-volt models offer a choice of 7,000 Btu on 7½ amps, or 9,000 Btu on 12 amps. The 208 and 230-volt units produce 9,600 Btu of cooling.

"The Viscount series in a 24-in. deep casing offers 115-volt models which have capacities of 8,500 Btu on 7½ amps; and 11,000 Btu on 12 amps. The 208 and 230-volt models provide either 13,000 or 15,000 Btu outputs. The 13,000 Btu model has one of the most favorable efficiency ratings ever obtained in a room air conditioner—7.8 Btu per watt.

"Low noise levels indoors and out for the Viscount are achieved by special Turbo-jet and Radiax fans. Only 26½ in. wide, and 16 in. high, it has a slide-out chassis, no side louvers, and front location of controls—making it ideal for through-the-wall mounting.

"The Imperial model has a centrifugal evaporator fan which handles 470 cfm. The four-row condenser coil permits an output of 20,000 Btu with power consumption of only 3,000 watts. Weight of only 210 lbs and dimensions of 24 in. deep, 26½ in. wide, and 18 in. high ease installation in the

IMPERIAL air conditioners offer 20,000 Btu cooling capacity for large rooms and small commercial establishments.

transoms of shops.

"The heat pumps include a Sceptre series in 115 volts without supplemental strip heat and a 230-volt model with an additional 5,500 Btu of electric strip heat capacity.

"A Viscount series 230-volt heat pump gives 14,000 Btu of cooling and adds strip heat of 6.200 Btu on heating. An Imperial heat pump with 18,000 Btu cooling will also be ready early next year.

"All heat pumps will have automatic defrost.

"A 9,600 Btu 'Roomette' console model for mobile homes and summer cottages continues in the line for 1961. This unit doubles as a bedside or end table and discharges condenser air through a floor opening under the cabinet."

•

Launch Program For Winter Sales Of Room Coolers

SYRACUSE, N. Y.—An aggressive fall and winter program to boost dealer sales in the off-season and to reward as many as 4,000 dealers with all-expense-paid vacation trips has been launched by Carrier Air Conditioning Co.

Called "Corner the Market," the program will provide prizes for early ordering and stocking of room air conditioners and packaged equipment in all sizes, according to William L. McGrath, general manager, unitary equipment.

"It will operate under a broad umbrella of the most liberal financing plans ever offered to Carrier dealers and an off-season advertising program to continue through the winter in consumer, trade, and special market publications," the announcement said.

The magazine support will include advertising in the *Saturday Evening Post, Better Homes & Gardens,* and in business publications like *Fortune* and *Business Week.*

Incentives will include "stock market shares" which will qualify dealers for five-day trips to Bermuda or Mexico City, seven-day sojourns in Jamaica, or nine-day visits to Hawaii — or the equivalent value in merchandise.

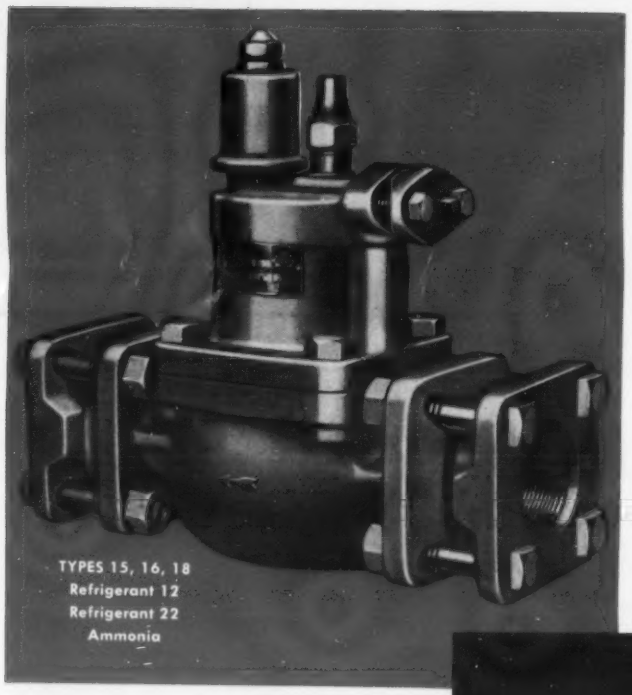
Dealers can stock equipment without down payment and without carrying charges for the full period of the contest, McGrath said — with renewals of the terms available to those who qualify early in the contest period. Early orders will count more toward prizes than those received later in the contest period — likewise with acceptance of delivery.

Appliance Buyer Credit Corp., an affiliate of Carrier Corp., also offers liberal financing terms for consumers, it was noted.

Dealer financing may be carried out either through the Douglas-Guardian Warehousing plan, which will waive carrying charges during the seven-month campaign, or through the ABCC.

SPECIFY • INSTALL

ALCO EVAPORATOR PRESSURE REGULATORS



Your protection from freeze-up

- SODA FOUNTAINS
- BEVERAGE COOLERS
- PRODUCE CASES AND PRODUCTS
- PLATING BATHS
- WATER CHILLERS

—from the smallest to the largest

Eliminates tube bursting

ALCO'S EVAPORATOR PRESSURE REGULATORS are designed, engineered and manufactured by ALCO, under ALCO'S HIGH QUALITY CONTROL SYSTEM—to efficiently maintain *evaporator pressure* in either a single or multipal system—*regardless of load changes.*

ALCO EPR VALVES are available from ½" to 6" port sizes and all connections up to and including 6⅛" O.D.F.—FOR ALL REFRIGERANTS.

Call your ALCO Wholesaler, Write for Specifications Bulletin #183-57

• *BUY SECURITY*
• *BUY QUALITY*
• *BUY ALCO*

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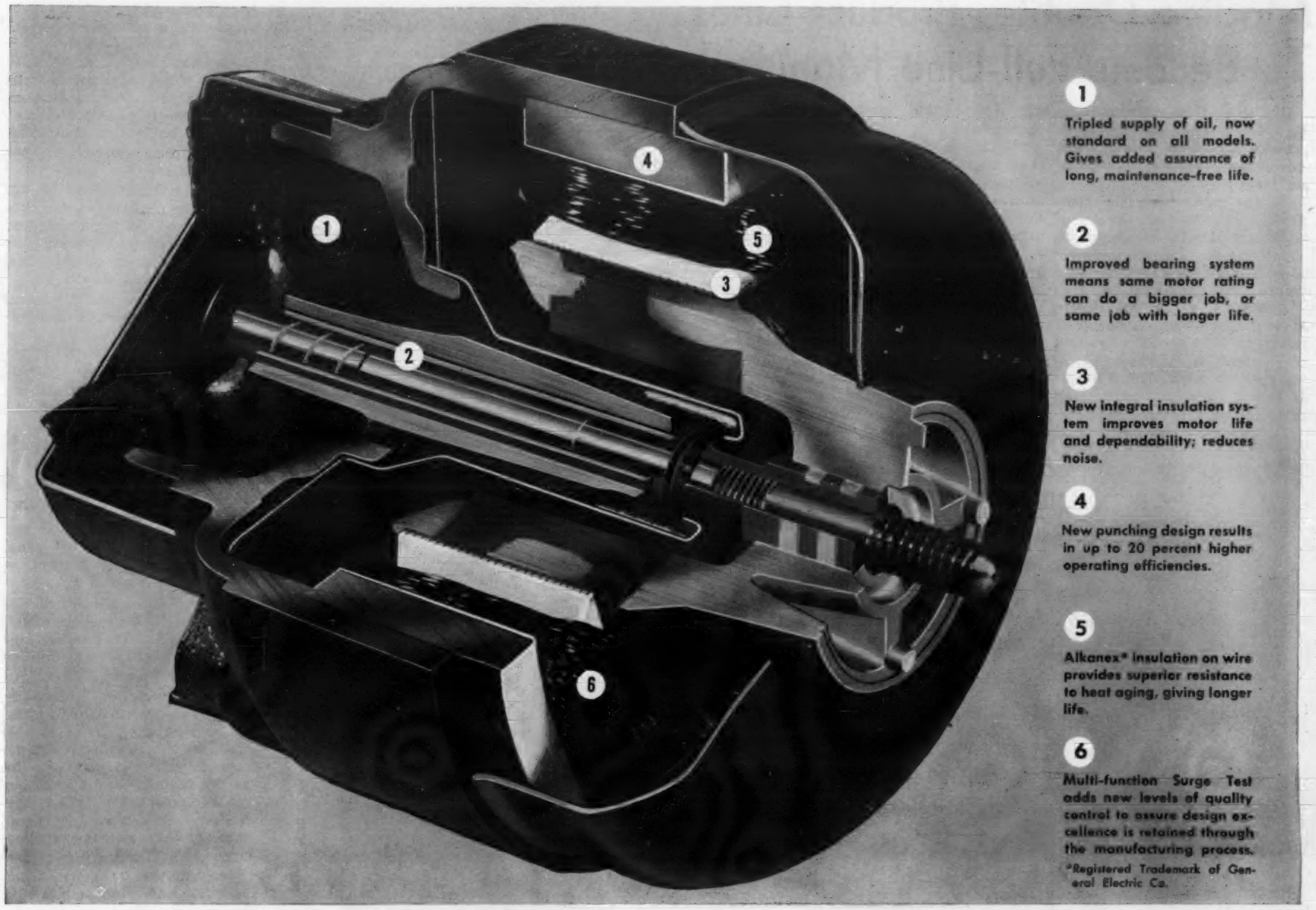
ALCO VALVE CO.
853 KINGSLAND AVE. • ST. LOUIS 5, MO.

The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

Trying to find the right man for a hard-to-fill vacancy—the NEWS' Classified Ads are read by your man.

Place your ad today!



1
Tripled supply of oil, now standard on all models. Gives added assurance of long, maintenance-free life.

2
Improved bearing system means same motor rating can do a bigger job, or same job with longer life.

3
New integral insulation system improves motor life and dependability; reduces noise.

4
New punching design results in up to 20 percent higher operating efficiencies.

5
Alkanex* insulation on wire provides superior resistance to heat aging, giving longer life.

6
Multi-function Surge Test adds new levels of quality control to assure design excellence is retained through the manufacturing process.

*Registered Trademark of General Electric Co.

The inside story of . . .

SIX ADDED VALUES IN NEW GENERAL ELECTRIC FAN MOTOR

Now you get that extra measure of dependability with General Electric 51-frame, unit-bearing shaded-pole fan motors. And you get it without a change in the familiar, functional exterior. Four-pole, totally enclosed ratings are: 1.5 to 16 watts, 60/50 cycles, 115 and 230 volts, single phase.

Six significant motor improvements sum up to added value in your products:

1. TRIPLED OIL SUPPLY. Now a standard feature—formerly popular as an extra—is the tripled oil supply for greatly extended life. Improved oil formula gives greater lubrication life over a wider temperature range.

2. IMPROVED BEARING SYSTEM. A sleeve bearing with superior finish and high load-carrying capacities is now used on General Electric fan motors. The same motor rating can now drive a heavier fan or drive the same-size fan with longer life.

3. INTEGRAL INSULATION. A new concept in stator insulation—integral insulation—provides significant improvements in insulation life, moisture resistance, and quietness of motor operation. The stator core is bonded with special high-dielectric-strength resin. This gives integral insulation a tested life expectancy many times that of conventional paper-slot insulation.

4. INCREASED EFFICIENCY. A new punching design results in up to 20% increase in operating efficiency, thus lower current drain, less watts input for the same job.

5. SUPERIOR ALKANEX INSULATION ON WIRE. Another component of the General Electric motor insulation system is Alkanex insulation on the wire. Superior resistance to heat aging means 14 times greater life expectancy than previous insulation.

6. NEW MULTI-FUNCTION SURGE TEST. Every General Electric fan motor is thoroughly tested before, during, and after assembly. And now a new multi-function surge test checks for insulation grounds, shorts, opens, resistance, continuity, and reversed polarity.

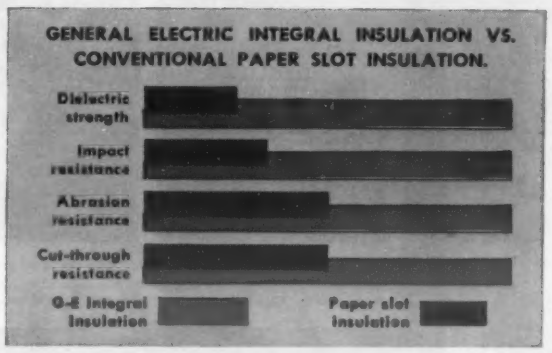
The improved General Electric fan motor is designed for applications demanding a long-life motor operating for its entire life without maintenance of any kind. This motor is best suited to power condenser and evaporator fans on food and beverage coolers, vending machines, walk-in coolers, condensing units, frozen food and ice cream display cases, and domestic freezers and refrigerators.

DON'T FORGET THESE BASIC BENEFITS

In addition to the new "added values," remember these basic benefits you receive with General Electric 51-frame motors:

1. FAN BLADE HUB IS PART OF THE MOTOR
2. EASY INSTALLATION OF FAN BLADE
3. ALL MOTORS TESTED BEFORE SHIPMENT
4. COMPLETE LINE OF ACCESSORIES
5. RELIABLE DELIVERY
6. APPLICATION ASSISTANCE
7. NATION-WIDE LOCAL SERVICE

Ask your General Electric Sales Engineer for more information on the improved fan motor and how it can be applied to your refrigeration products. Or fill in coupon.



Superior on four important counts—that's the General Electric integral insulation system. Compared to conventional paper slot insulation, integral insulation has: four times the dielectric strength; three times the impact resistance; twice the abrasion resistance; and twice the cut-through resistance. And, unlike paper slot insulation, it is completely impervious to humidity.

To: General Electric Co., Section B632-17,
Schenectady 5, New York.

Please send me complete data on 51-frame shaded-pole fan motors.

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TITLE_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____

Progress Is Our Most Important Product

GENERAL ELECTRIC

Modine Doubles Product Lines To Become Full-Line Manufacturer

RACINE, Wis.—Modine Mfg. Co. announced an extensive product expansion which will more than double present product lines.

At the same time, the company indicated that the "doubling now is a forerunner of an equal number of new products to be announced within the near future."

According to A. G. Dixon, Modine executive vice president, the marked product growth means that Modine "is graduating from a specialized producer of heating and air conditioning products to a full-line source."

Dixon added that the company now has a complete radiation package as well as enhancing its position in the unit heater field.

"It is our belief," he said, that these fields are rapidly maturing, much like the automotive and appliance industries. Consequently, it will soon be difficult for a short-line manufacturer to do business efficiently and to provide the services and products required by architects, engineers, contractors, owners, and distributors.

"This move on the part of Modine means that we are fully prepared to meet head-on the major marketing changes anticipated for our industry."

The company said it was expanding its product lines in three major categories.

In the radiation field it is adding finned tube radiation and baseboard heating units. In the air conditioning area, new products are Low-Boy chilled water type room units, steam and hot water and electric self-contained units.

New unit heaters include an electric unit and an industrial gas vertical unit. In addition, the company unveiled new lines of steam specialties and exhaust fans.

(Descriptions of the new product lines were printed on page 7 of the July 4 issue and page 12 of the Aug. 29 issue of the NEWS.)

Cary C. Wilson, vice president in charge of sales, noted that the new products are expected to contribute significantly to Modine's continuing sales growth.

"We see a doubling—and even a trebling of sales volume as a direct result of the new product availability and strengthened organization," he declared.

The broadened product line "is the direct result of a market research program initiated by Modine three years ago," it was pointed out. "As a result of preliminary market findings, the company embarked on two separate market research studies which guided both new product development and marketing direction."

According to Wilson, Modine is now instituting a five-year plan to consolidate gains of the past year and to open up new and related markets for the mushrooming product line.

Wilson stated that a major sales realignment and strengthening is going hand-in-hand with the product expansion.

He said the company's sales network now encompasses 68 manufacturers' representatives plus a network of over 300 strategically located stocking distributors with plans to increase that number.

Plans are being laid to upgrade the specifications program keyed to architects and engineers and to implement the stocking program among distributors, it was stated.

Wilson also noted an integral sales realignment has been effected with Leo Glascock named sales manager of heating and air conditioning products, while Daniel Kelly has been appointed manager of distributor sales. Regional managerial organization "has been almost doubled with regional managers and field assistants in the process of being named."

L. Glascock

Modine reported sales of $31 million for the fiscal year ending March 31, 1960, an increase of 35% over the $23 million recorded for fiscal 1959.

The company was founded in 1916. In addition to heating and air conditioning products, it produces engine-cooling radiators and oil coolers for the automotive industry and heat transfer equipment for highly specialized industrial, chemical, nuclear, and electronic applications.

In addition to its headquarters and plant at Racine, Modine has plants at LaPorte, Ind., Whittier, Calif., and Paducah, Ky.

Perfection Appoints Five Wholesalers

CLEVELAND — Five new wholesaler distributors for the Perfection line of residential furnace, air conditioning, and heat pump products have been appointed by Perfection Div., Hupp Corp.

"The value of our policy of expanding distribution through strong independent wholesalers is clearly evident in the almost geometric growth rate shown by our air conditioning and heat pump sales in the last few years," Carl W. Millsom, Perfection sales vice president, said.

"In 1959 sales were up 254% and this year they have leapt forward another 47%. Distributors handling our products on an exclusive basis have nearly doubled their sales in 1960."

The new wholesalers, who will handle the complete line of Perfection oil and gas-fired warm air furnaces, central residential air conditioners, and heat pumps, are:

Capitol Supply Co., Jefferson City, Mo., D. D. Stout, president. C. L. Miley Co., Indianapolis, C. L. Miley, president. Braid Electric Co., Nashville, Tenn., Sam S. Gamble, president. Hart, Inc., Minneapolis, Floyd Hart, president. Otten Heating Co., Inc., Buffalo, Irving C. Hangauer, president.

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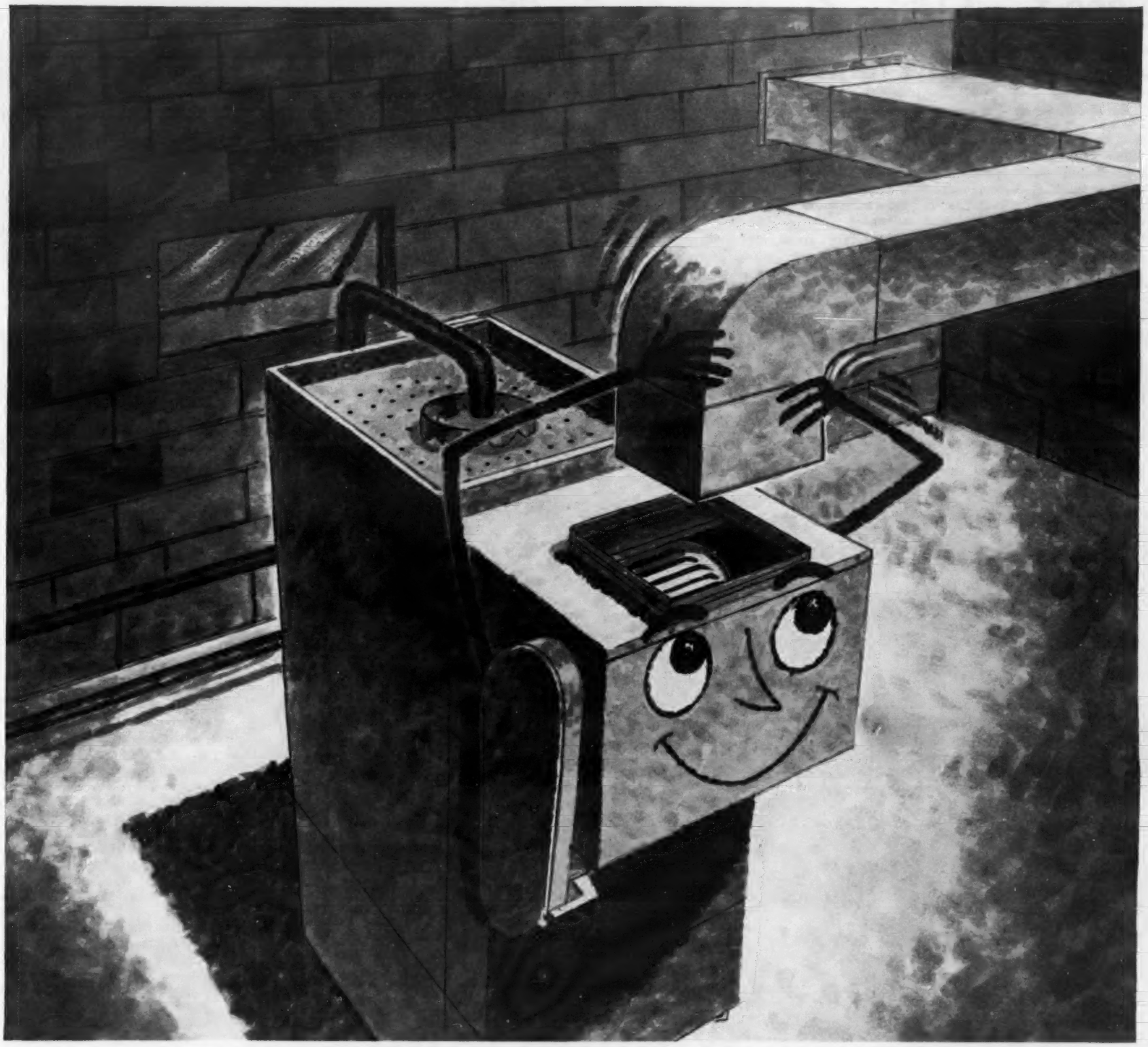

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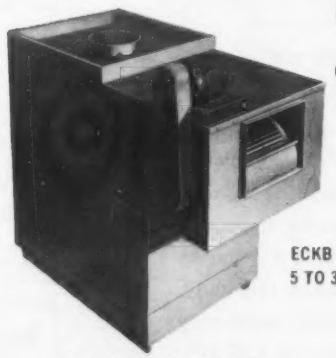

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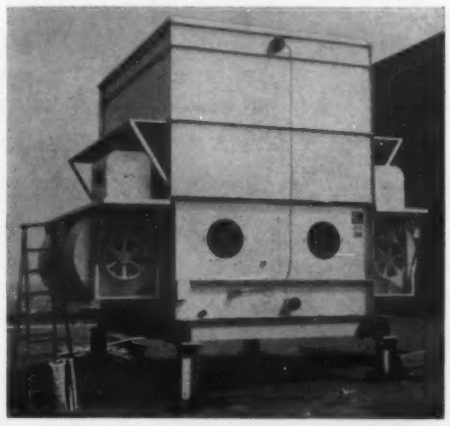
2,000-Ton Addition Completes Air Conditioning Of U. S. Govt. Printing Office In Washington (2)

By William H. Harrison, Chief Operating Engineer, U. S. Government Printing Office

The $2.5 million cost of air conditioning Buildings 1, 2, and 3 of the U. S. Government Printing Office two years ago was completely justified by the technical improvement in printing production and in personnel efficiency and morale.

Last week, the author discussed the three alternative plans considered for completing the air conditioning job and why a fourth plan, submitted by a consulting engineer, was accepted.

He described the 2,000-ton central system installed to cool Building 1 and parts of Building 3. He continues with a description of the use of separate units for special areas.



PACKAGE UNITS already in use at the G.P.O. were relocated to air condition Building 2 and piped to this cooling tower.

In certain areas air conditioning units were supplied to maintain special conditions. In the press and bindery sections the humidity will be controlled by built up floor-mounted, dew-point controlled, spray coil units. In summer the spray pump circulates water over the chill coil, the temperature of which is controlled by three-way by-pass water valve. In winter the spray temperature is maintained by outside air, return air, and steam pre-heat.

The room temperature is controlled by face and by-pass dampers with steam reheat. Revolving screen oil filters are provided on the fresh and return-air. The set point will be 50% relative humidity with 78° d.b.

A unit that conditions an electronic computer room is essentially the same as the spray coil units except that special throw-away filters will be used in combination with the regular types to provide this area with an exceptionally high degree of air cleanliness.

Another feature of this unit is a 15-ton package air conditioner, utilizing the same filtering and duct system as a stand-by for use when the large compressors may not be operating. This unit is supplied with city water for condensing and will automatically start if the main unit is shut down.

The Public Printer's suite is conditioned by a dual-duct system with mixing boxes at each outlet. The boxes contain an air mixing valve and volume control. The air-handling unit has a hot deck heated with hot water in winter and return air in summer. The cold deck will have chilled water in summer and outside air in winter. A minimum amount of fresh air will be supplied at all times.

Other office areas are conditioned by multi-zone units with face and by-pass dampers controlled by thermostats in each zone.

In the monotype casting room, where large amounts of heat, oil, and lead vapor are given off by machines, a suspended ceiling was provided to act as an exhaust hood in order to reduce the length of oil and lead vapor travel. Conditioned outdoor air is supplied through this same hood. A thermostat in the exhaust air will maintain room temperature at 85° F. No air is recirculated.

Linotype machine areas are air conditioned with partial recirculation of conditioned air. During the cooling season an air quantity equal to the amount of fresh air introduced to the linotype, composing room, and hand section will be taken from these spaces and supplied to the metal melting room to give some degree of cooling to that area.

The stereotype room air supply is all outdoor air, conditioned to maintain 80° F. with the exception of areas where metal melting pots are located. These pots are hooded and all air supplied to this space is exhausted through the hoods.

Original supply and exhaust air quantities in the electro-molding section were very high and because of the fumes from the electro-plating could not be appreciably reduced. Spot cooling was provided here with a unit supplying 60° F. air through adjustable pattern type diffusers.

The package units, after being removed to Bldg. 2, were installed with duct systems, filtered fresh air sources, controls, hot-water heating coils, and connected to a metal spray

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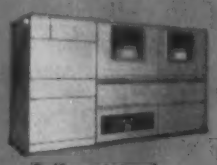

Self-contained air conditioners

Acme in Wonderland

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In the forefront of the "contributors" to shopper comfort, there's Acme . . . for many of the leading stores in the Center feature Acme-system air conditioning equipment. And it figures . . . because in a shopping center that's as completely modern in every respect as Wonderland is, you expect to find the latest word in air conditioning. And the word is *Acme* . . . for compact, space-saving design . . . for high capacity efficiency and operating economy . . . for low cost installation and maintenance . . . for factory-packaged and guaranteed performance reliability. There's more, but more to the point . . . your "wants" in an air conditioning system, Acme offers. And your nearby Acme representative can prove it. Call him.

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DIFFICULT problem of dealing with large amounts of heat plus lead and oil vapor in monotype casting room was approached by suspending ceiling to serve as an exhaust hood. 100% conditioned outside air is also supplied through ceiling.

* * *

type tower on the roof of that building.

Flow switches were installed on the condenser water connections at each unit to prevent the compressor being operated when the tower is not in service. Three-way by-pass valves control the hot water to the heating coil. Fresh air inlets and heating were sized for ventilation only.

With the refrigeration system in the main machine room, remote start, stop, and temperature indication, and only a small increase in package units, it will be possible to operate the new equipment with no increase in operating personnel.

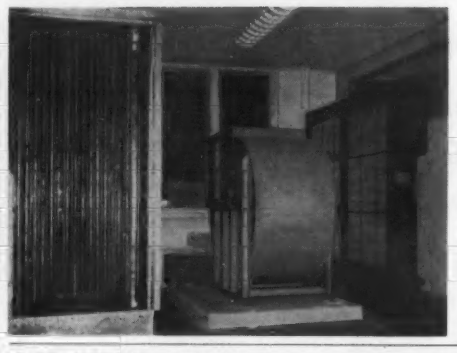
Small Labor Crew Will Handle Lubrication, Filter Cleaning

A small labor crew will take care of the lubrication and cleaning, a major part of which will be some 600-odd washable type air filters. To speed this job a filter washer and oiler was installed with which one man should be able to clean and oil 50 to 60 panels per hour.

Water in the closed hot and cold water systems will be chemically treated to prevent rust and corrosion. Proportioning pumps will feed chemicals to the condenser water for corrosion and scale prevention.

To provide the necessary increase in power capacity, the electrical distribution system was completely revamped. The old 6,500 kva. 208-volt substation was replaced by five stations totalling 13,000 kva., a sixth 4,160-volt station of 4,000 kva. capacity powers the two 1,000-ton compressors and the chilled water pump.

The old 400-hp. compressors have been rewound for this same voltage and are supplied by this station. Space for three of the sub-stations was provided by building a new structure over an alley between Bldgs. 1 and 3 and extending from the third through the eighth floors.



SHOWN here in early stages of construction is a typical spray coil room required for close control of humidity, temperature, and air cleanliness in such areas as press rooms and binderies.

Miss Young Garment Factory To Be Cooled

SMOAKS, S. C. — A new 33,000-sq. ft. air conditioned building will be constructed here to house a garment factory, to be operated by the Miss Young Corp.

Kahn-Southern Construction Co., Columbia, has the contract for construction of the new structure, which is expected to be completed and ready for occupancy by Dec. 1.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Comfortaire Granted Tennessee Charter

NASHVILLE, Tenn. — Comfortaire, Inc., P.O. Box 6221, Nashville, has been granted a state charter to engage in the retail sale of air conditioning and heating appliances, and allied items. The incorporators: S. A. Love, Wilson Bracey, and Edward J. Fulton.

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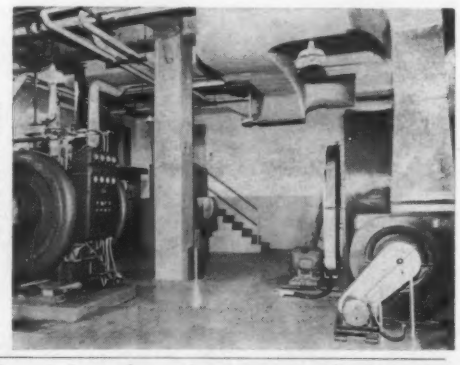
Cools Some of the People Most of the Time

Flexible System Designed for High School's Creative Arts Building That Doubles As Pittsburg Municipal Auditorium



EQUIPMENT ROOM of Creative Arts Building houses Trane air conditioning equipment. System provides heating, cooling, and dehumidification simultaneously throughout various zones.

PITTSBURG, Calif.—Because the new Creative Arts Building of Pittsburg high school also serves as a cultural center for the city, which does not have a municipal auditorium, diversity of building usage created a problem in design of the year-round air conditioning system.

Problem was that the entire building is not usually occupied, but one or another area is in use most of the time.

The brick and concrete structure, completed last year, covers a 70,000 sq. ft. area and includes an auditorium with 2,000 seats, a separate little theater which accommodates 250, plus band, choral, radio, and photography rooms. It cost $1,844,000.

Approximately 5,000 pupils from Pittsburg's unified school district use the facilities of the building during the school year. In addition, many evening school pupils use it as part of an adult education program. Thousands of Pittsburg and neighboring community residents use the building as a cultural center.

Zone Control Required

In designing the air conditioning system, zone control was required because of the varying temperatures between the balcony and lower sections of the auditorium as well as the other rooms.

Simplified system operation was desired because the air conditioning plant was to be operated and maintained by the building custodian.

A direct expansion system using reciprocating compressor chillers was considered to provide the cooling needed. Gas-fired tube boilers using hot water converters were considered for the central heating equipment.

However, it was the system designer's opinion that better control and lower maintenance would be associated with using a hermetically sealed centrifugal water chiller and cast iron hot water boilers.

A 125-hp Trane hermetic "CenTraVac" was installed to generate chilled water through a central air conditioning plant and remote equipment rooms for the purpose of cooling and dehumidification, as required.

A large cast iron boiler approved for 80 psi working pressure generates hot water for heating during the winter and for reheat as required during the cooling season.

Flexibility was built into the system to provide heating, cooling, and dehumidification simultaneously throughout the various building zones.

A graphic supervisory data center installed in the central mechanical equipment room indicates dry-bulb temperatures throughout the various zones and certain critical points in the system.

The data center was installed with provisions for reset as required remotely from the central control in the data center panel.

The data center panel automatically programs the chilled and hot water plants as dictated by the various zone thermostats and humidistats throughout the building. No time clock is incorporated into the system because of the various usage factors.

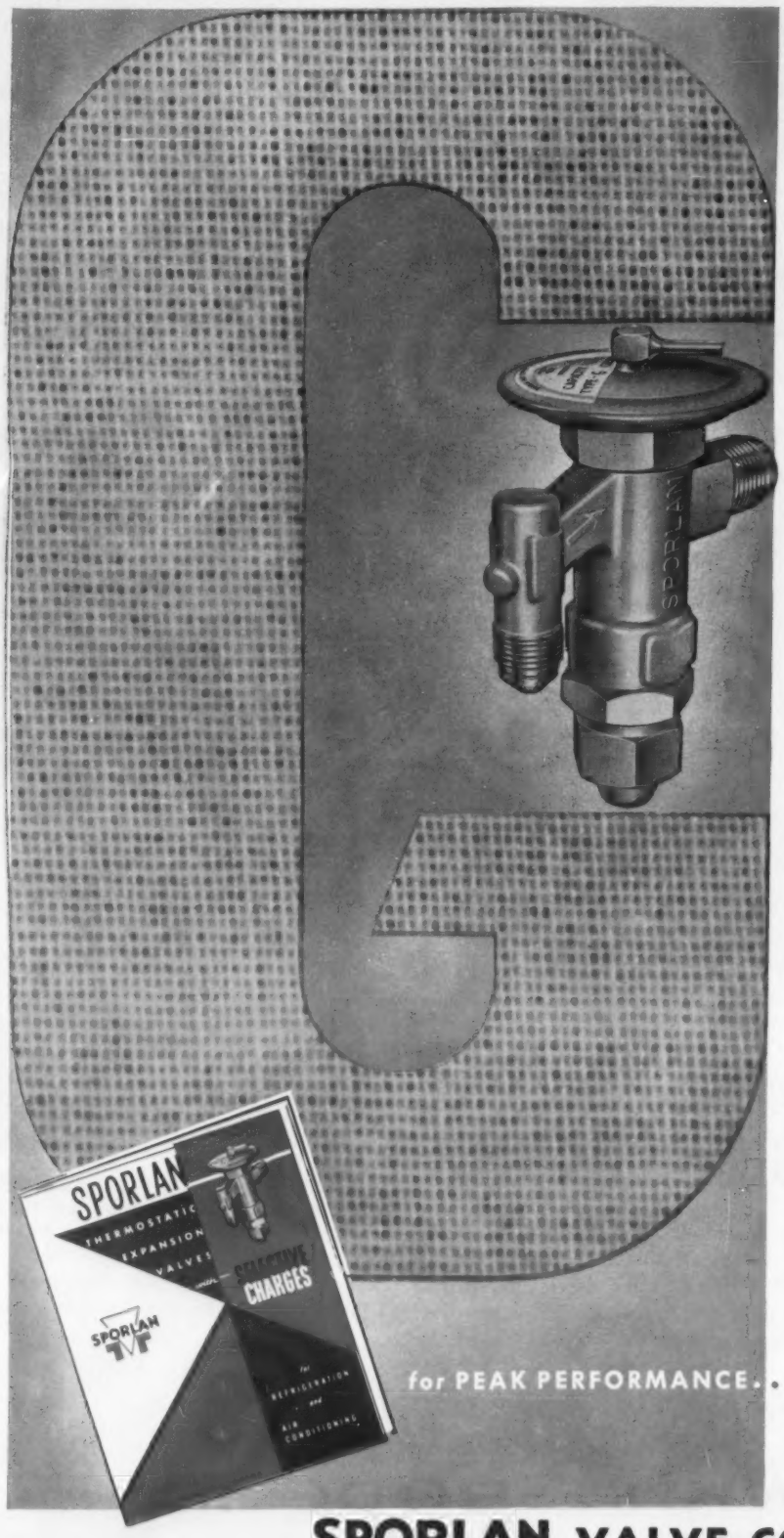
How System Works

A central chilled water pump circulates chilled water in a closed loop in the chiller room. For each conditioning unit, an individual circulating pump draws water as required from the main chiller loop and delivers chilled water blended with by-pass water to its zone cooling coil.

Water from the chilled water coil is either returned to the CenTraVac for recooling, or by-passed through a 3-way blending valve at the suction of the pump circulator, to provide the desired water temperature at the cooling coil.

Blended water is circulated through the particular cooling coil at temperatures demanded by the space thermostat or for dehumidification as called for by the space thermostat or for dehumidification as called for by the space humidistat. Reheat is provided by a hot water coil downstream from the cooling coil.

Cooling and dehumidification is accomplished by an 8-row chilled water coil in the central



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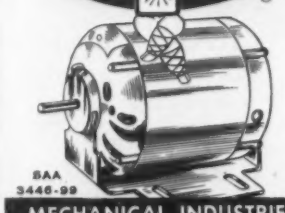
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air conditioning plant associated with the main auditorium. Cooling and dehumidification in remote areas is accomplished by the installation of 4 and 6-row chilled water coils as required.

Blend Hot, Cold Water

In lieu of the conventional face and by-pass arrangement for cooling and dehumidification using a constant temperature cooling coil, the engineer used constant water volume but varied the temperature of the water by blending by-pass water with chilled water through a 3-way modulating valve to attain the conditions desired.

Heating is provided in a similar manner to cooling, i.e., constant water volume through the heating coil, using a separate circulator for each zone.

3-Way Mixing Valve

A 3-way mixing valve blends hot boiler water with by-pass water to attain proper water temperatures. Water that is not by-passed is returned to the boiler.

Additional refinement is built into the main auditorium controls as follows: A reheat coil is located downstream from the cooling coil which brings the dry-bulb temperature back to 60° after dehumidification.

Booster coils are provided for each zone to make final adjustments to the dry-bulb temperatures of the supply air to the respective zones.

Controls Hold ± 1° F.

Temperature controls are electronic - pneumatic. Space temperatures are maintained within a range of plus or minus 1° and humidities are maintained within limits of plus or minus 2% in each zone.

Major equipment such as the CenTraVac, boiler, supply and exhaust fans, and circulating pumps are located in the basement.

Chilled and hot water mains running from the CenTraVac and the boiler supply secondary air conditioning units in isolated areas of the building. Remote air conditioning units for the little theater, band and choral rooms, etc., are located in soundproof attic spaces to save floor space.

Air distribution ducts in most instances are acoustically lined. Sound traps are provided in both supply and return branches to all of the practice rooms.

The Creative Arts Building was designed by Cantin & Cantin, San Francisco. The mechanical engineer was Sanford W. Fox, consulting engineer with offices in Oakland and San Francisco. Equipment was installed by Coast Ventilating & Heating Co., Oakland, Calif.

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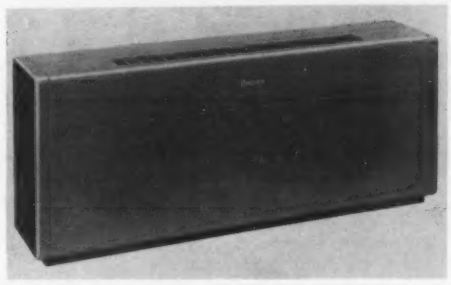

NEW WARREN WEBSTER unit ventilator is designed especially for installation in schools.

Warren Webster Moves Into Unit Ventilator Field with Five Sizes

CAMDEN, N. J. — Warren Webster & Co., Inc. has announced its entry into the unit ventilator field with a line of five sizes ranging from 500 to 1,600 c.f.m. designed especially for school installation.

Webster regards its new product line as a natural outgrowth of its 75 years of experience in the heating and cooling field.

The unit ventilator is engineered to be used with the established Webster "Tru-Perimeter Walvector," and is integrated into a companion line of functionally styled storage cabinets.

Andrew F. Ward, Webster marketing vice president, stated that "we have been working on the development and sales of this product line for some time. We are aware that architects and engineers, as well as school boards, welcome the strong additional competition which Webster unit ventilators will bring the so-called big three in this market."

Alberta Wheat Pool Building Gets Cooling

CALGARY, Alb., Can. — A high velocity perimeter air conditioning system with a large number of zones to give a high degree of individual control to offices is a feature of the eight-story Alberta Wheat Pool office building here, it was reported recently.

Another feature is what is claimed to be the world's largest adhesive-bonded tile facade.

Air Conditioned Mall To Be Heart of New Shopping Center

ABILENE, Texas — Demolition work for construction of a downtown block square shopping center built around an air conditioned mall started here on Sept. 1. It is expected to be completed in about a year.

Ten stores will face the air conditioned mall so that shoppers can move from one to the other in cool comfort.

Plans are already being made for a second shopping center in an adjoining block. The two will be connected by a pedestrian bridge.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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Air Force Told How

Central Alarm System Cuts Operating Costs, Frees Manpower for Maintenance

DAYTON—How "surveillance alarm systems" and central programming control of air conditioning and heating equipment can save manpower and operating costs in both military and civilian applications was outlined before the recent Heating and Power Conference staged by Headquarters, United States Air Force at Wright-Patterson Air Force Base here.

Centralized alarm systems can eliminate the need for much of the periodic inspection of remotely located equipment normally required, the conference was told by Russell Attridge of Minneapolis-Honeywell Regulator Co.

The surveillance alarm system "will automatically alarm at a central panel any failure of equipment protected on its own circuit," Attridge said. "One man can now check the operation of your remote plants. The operators eliminated by the system can be assigned maintenance and repair duties to better utilize existing manpower available.

"The system that was developed consists of a panel in the remote boiler plant," Attridge explained. "There is one of these panels for each boiler. It is connected to the safety devices on the boiler, such as the electronic combustion control, low water cut-off, and high and low pressure switches.

"A pilot light is provided for each function so that the device that initiates the signal can be identified quickly, in the event of an alarm condition, by the maintenance man dispatched to the building.

"All of these panels within a building are connected to a boiler plant panel which is usually located near the entrance of the building. This panel contains a horn which sounds whenever a boiler malfunction occurs so that anyone in or near the building will be alerted.

"In addition, the boiler plant panel transmits an appropriate signal to the central control panel at the base maintenance headquarters. The panel is also equipped with a jack so that a portable telephone can be plugged in for voice communication with headquarters," Attridge pointed out.

"When a boiler alarm is received at the central control panel at surveillance headquarters, a horn sounds and the appropriate pilot light reveals the exact location of the critical boiler. The system notifies you of any failure and a serviceman can be dispatched to prevent costly and dangerous breakdowns.

"This is done over a two-wire system between the boiler plant and the maintenance headquarters, the electrical circuit is supervised so that any failure of the wiring or power will initiate a trouble alarm at the headquarters panel."

Installation of this type of surveillance system has been completed at a number of Air Force bases, Attridge indicated, and it has been further developed to include programming of mechanical equipment operation at such places as Maxwell AFB, the Air Academy, Harvard university, and Philadelphia Electric Co., the latter also employing a computer system to control generating power, he said.

Air Conditioning Hottest Thing In Birmingham Survey

BIRMINGHAM, Ala. — Air conditioning is the hottest item on the Birmingham appliance market, according to a survey recently completed by the consumer analysis department of *The Birmingham News-Post-Herald.*

The percentage of families owning air conditioning in the metropolitan Birmingham area rose from 17.6% at the end of 1958 to 23.1% at the end of 1959, the survey indicates.

This means 23,400 families owned air conditioners here at the end of 1959. That compares with only 1,575 families in 1952.

The consumer analysis showed that one out of every three white families in the area now owns an air conditioner.

More than 90% of all air conditioning units in Birmingham are window units. The best is yet to come in the air conditioning field, according to all estimates.

In window units the trend is to larger sizes. Two horsepower sizes are now popular. One dealer reports that 75% of his sales this year will be of that size.

In new houses the central system is usually chosen if any air conditioning is included. Another dealer reported the "heat pump" was "taking the day."

On the other hand, the local gas utility is actively soliciting gas installations, even to actually making the installation in order to get a wider acceptance for its "Sun Valley" line.

Air Moving Group Names Irving W. Clark As Chief Exec. Officer

DETROIT—The appointment of Irving W. Clark as executive vice president and chief executive officer of the Air Moving and Conditioning Association has been announced by Earl Trickler, association president.

Clark was formerly manager of American Air Filter Co.'s Heating, Ventilating and Air Conditioning Div. Prior to this, he was with the Westinghouse Electric Corp., and Great Lakes Steel Co.

During his term as president of Industrial Unit Heater Association, a predecessor organization, Clark was instrumental in helping to bring the present association into being. AMCA member companies number 66 producers of air moving and conditioning equipment.

HOW WOULD YOU LIKE

... to double the profit from new air conditioning business?

... to keep more service men busy in the winter so they are available to install more jobs in the summer?

... to make a substantial profit from your service business?

... to schedule your service work instead of having your customers schedule it for you?

Carrier dealers and only Carrier dealers have this opportunity with CPS—Carrier Planned Service. CPS is just one of many exclusives that make the Carrier franchise the most valued in the industry. Interested in details? Call the Carrier distributor listed in the Yellow Pages. Carrier Air Conditioning Company, Syracuse 1, New York.

Carrier Air Conditioning Company
A DIVISION OF CARRIER CORPORATION

SING A SONG OF SIZES . . . UP AND DOWN THE SCALE.

Whatever the requirements of your refrigeration or air conditioning equipment may be, chances are there's a Bendix-Westinghouse compressor and condensing unit to fill them. For Bendix-Westinghouse offers a complete range of sizes and capacities—from ¼ hp on up through 5 hp. And they're all designed for tight-squeeze quarters. No other compressors of their size deliver so many BTU's. Turn the page for important news about the newest member of the Bendix-Westinghouse line.

Bendix-Westinghouse MOTOR COMPRESSORS

NOW! SIX BENDIX-WESTINGHOUSE COMPRESSOR SIZES BRING NEW ROOM COOLER DESIGN FREEDOM

This new Bendix-Westinghouse compressor series gives manufacturers of window air conditioners a wide range of capacities for complete line planning:

Model	BTU's	Volts
YCH137VA-1	6,100	115
YCH161VA-1	7,100	115
YCH222VA-1	10,000	115
YCH222VA-2	10,000	230
YCH260VA-2	12,000	230
YCH322VA-2	15,000	230

Available with three or four legs, the compressors are easily and permanently bolted down in the unit. They require no mounting straps or other gadgetry, since all models are internally spring-mounted. And they are *quiet!*

Valve construction is rugged, assuring long life and dependable supply of cooling needs. Aluminum crankcase construction and modern design reduce weight, saving shipping costs both into and out of your plant. For easy access and service, the tubing connections and terminal box are located on top. Insulation for the two-pole motor is of the latest and best type.

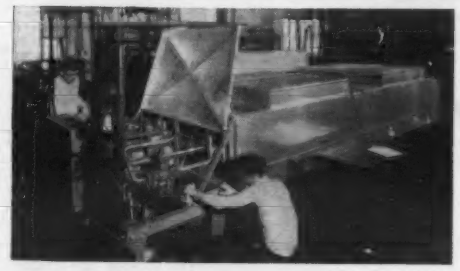
Because Bendix-Westinghouse compressors are quiet, they are ideal for bedroom-window units—a potent sales feature for you. Get all the facts on the versatile line of Bendix-Westinghouse compressors. Call or write direct.

Bendix-Westinghouse

EVANSVILLE, INDIANA

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio
Export Sales: Bendix International, 205 E. 42nd St., New York 17, N.Y.

'No Place Too Hot for Unicon'



KRAMER LABORATORY technicians check compressor section after completion of Kramer Unicon-Compressor hot room test. Test was run with compressor completely covered as in outdoor operation.

Unicon Compressors Pass Performance Tests at 118° F.

TRENTON, N. J. — Kramer-Trenton Co. has completed performance tests made on the company's new line of "Unicon-Compressors" (complete air-cooled condensing unit through 75 tons) under "punishing high temperature conditions."

Kramer engineers tested standard Unicon-Compressors at various temperature levels ranging up to 118°F.

On the basis of these rugged tests, and backed by actual field experience, Kramer engineers state that "they will operate reliably any place in the U. S. and no place is too hot for the Unicon-Compressor."

Since the equipment included models that were physically too large to test in the standard Kramer hot rooms, the laboratory compressor room was temporarily converted to a hot room in order to complete the tests, it was pointed out.

Available in sizes ranging from 3 to 75 tons and both horizontal and vertical face models, the Unicon-Compressor is a complete factory assembled and tested packaged air-cooled condensing unit.

Where equipment will be operating when the outside temperature falls below 60°, a built-in automatic head pressure control — the patented Kramer Winterstat — is available. The Winterstat will automatically maintain proper pressures to insure proper expansion valve operation during cold periods, it was stated.

Evaporators to balance the Unicon-Compressors are available.

S. Charles Segal, general sales manager of Kramer Trenton, said the company will announce a complete new line of air handlers in the near future. These air handlers will have a number of desirable innovations, he added.

Weir, Bell Get New Plant Posts at Frick

WAYNESBORO, Pa. — Appointments of William F. Weir as manager of manufacturing planning for Frick Co. and Arthur W. Bell as director of industrial relations were announced by Matthew M. Gouger, executive vice president.

Weir has more than 25 years' experience in manufacturing and engineering and management. He was recently associated with Booz, Allen & Hamilton where he was a manufacturing consultant working with more than 30 companies.

York Names Lewis Assistant to Elliott

YORK, Pa.—Caryl C. Lewis, former vice president in charge of purchasing and material control for Schick, Inc. in Lancaster, Pa., and former general manager of the Auto Radio Div. for Radio Corp. of America, in Camden, N. J., has been named as staff assistant to Joseph B. Elliott, president of York Div. of Borg-Warner Corp.

In announcing the appointment, Elliott said that "Lewis' experience in building, equipping, and managing a number of modern production facilities will be of great value to the York Div."

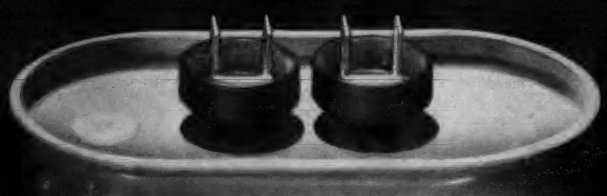
The new staff assistant will concern himself with purchasing, scheduling, production, cost control, and quality control for York's air conditioning, refrigeration, and heating products.

Got a Problem? Eaton Booklet Asks

BATTLE CREEK, Mich. — Special techniques and processes available to help solve problems in production and development programs are described in a new booklet entitled "Got a Problem?" which is being released by Eaton Mfg. Co.'s Valve Div. here. Cartoons are used to illustrate many special techniques.

G.E.'s TWO NEW FLAT-OVAL RATINGS Permit You to . . .

CUT YOUR CAPACITOR COSTS



...and SAVE SPACE in modern compact Air Conditioning equipment

General Electric's two new flat-oval capacitor ratings give you **cost savings up to 9%,** reduce space requirements for 25 μf 440 V and 35 μf 370 V capacitors in your 1961 equipment designs.

With these and other ratings, General Electric leads the trend to compact, economical flat-oval capacitor designs. **Flat-oval designs** retain all the mounting advantages of flat-sided rectangular designs, and give you greater design flexibility and long-life reliability.

For more information on capacitors for air conditioning equipment, contact your nearby G.E. Apparatus Sales Office or write General Electric Co., Section 448-07, Schenectady 5, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

25 μf 440 VAC 35 μf 370 VAC

ACTUAL SIZE

Calif. Bid Law Change Proposal--

(Continued from Page 1, Col. 3)

quired to file with the registrar of contractors details of the opening, a list of subs, facsimile copies of the bids, an affidavit setting forth subcontracts let and prices, and in the event a contract was not given any of the subs listed, the reasons therefor.

The 10-man committee has five AGC representatives, and five Construction Industry Legislative Council representatives. CILC includes seven subcontracting associations and the California Builders Exchanges.

The report on the sub-bid listing program was adopted by the 10-man committee in principle and has been referred to member organizations for their approval.

Text of Report

Here is the report:

"It is becoming increasingly difficult to bid competitively on either public or private work for both generals and subs alike as a result of increasingly difficult and, in cases, irresponsible intra-industry relations and practices commonly referred to as 'bid shopping' and 'bid peddling.'

"Other bad practices connected with sub-bidding have lead to the frequent victimizing of general contractors and responsible subcontractors and have tended to place the industry in a position of questionable repute.

"A variety of solutions to these problems have been advanced in this and other states, some of which have involved legislation and others voluntary action or cooperation. It is self-evident that past efforts have met with limited success, and that some new approach is necessary.

"On the other hand, to be acceptable to the various segments of the industry, any new plan to be advanced should not unduly disrupt or change around, the traditional methods of doing business, or divisions of responsibility in the industry.

"Rather than to legislate devices to alter the traditional methods of doing business within the industry, in an attempt to eliminate the opportunity for the above mentioned bad practices to operate, it seems to us that within the framework of the present licensing laws bid shopping and peddling should be declared illegal, and those engaged in such should be subject to disciplinary action.

'Code of Verifiable Procedure' Proposed

"We propose that a 'Code of Verifiable Procedure' be added in a new section under Article VII of the Business and Professions Code and necessary amendments to existing laws, and that the violation thereof be a cause for disciplinary proceedings along with all of the other causes listed in this article, such as abandonment of a project without legal excuse, diversion of funds, willful departure from plans, willful disregard of building laws, failure to make and keep records, etc.

"The Code of Verifiable Procedure to be administered and enforced by the Registrar and the State Contractors License Board is visualized as follows:

"1. The terms of the subcontract to which the sub-bidder is to be bound, including bonding requirement, financial standards, and any other qualifications, shall be established by the prime contractor and made available to the sub-bidder prior to bidding.

"2. All sub-bidders' quotations to general contractors are to be in writing and transmitted at least 24 hours in advance of the prime bid opening by such means that the written bids of themselves are unimpeachable evidence of time, price, and legal validity. This would rule out all means of transmission except telegraph.

"3. In order to list a sub-bidder under the listing law, the prime bidder or general contractor would have to have a valid written bid in his possession that was transmitted as above.

"4. Sub-bidders could withdraw bids by the same telegraphic means provided the bid is so withdrawn prior to 12 hours before the prime bid opening. After the commencement of the 24-hour period no substitute for a withdrawn bid shall be allowed.

"5. Within a specified time after the award of a contract, the successful prime bidder would be required to file with the Registrar of Contractors the following data:

"(a) A covering letter naming the job and the date and hour of the prime bid opening.

"(b) A true copy (photostat or Thermo-Fax) of the subcontractors listed in the prime bid.

"(c) True copies (photo or Thermo) of the written telegraphic bids from the listed subcontractors. (These would show on their face the exact time of transmission.)

"(d) A simple affidavit setting forth the subcontracts which the prime contractor had let and at what prices. (This might be changed to require true copies of the actual subcontracts, or to require the affidavit to include certain important terms.)

"(e) In the event that any of the listed subcontractors were not awarded contracts after the prime award, the prime contractor would include in his affidavit the reasons why. Such reasons should be specifically provided for in the statute and could include refusal of the named subcontractors to accept the job, reasonable evidence that the subcontractor was insolvent or lacked resources to do the job, or permission by the awarding authority to substitute another subcontractor upon a showing of a reason prescribed under the sub-bid listing law.

Record Would Aid In Handling Complaints

"With the verifiable record of each listed job at hand, as above outlined, the Registrar would be in a position to handle any complaint of any violation. However, such records are to be confidential and not subject to inspection without a showing of good cause to the Registrar, or a court order.

"A routine comparison of matters submitted under paragraph 5 will be made by the Registrar.

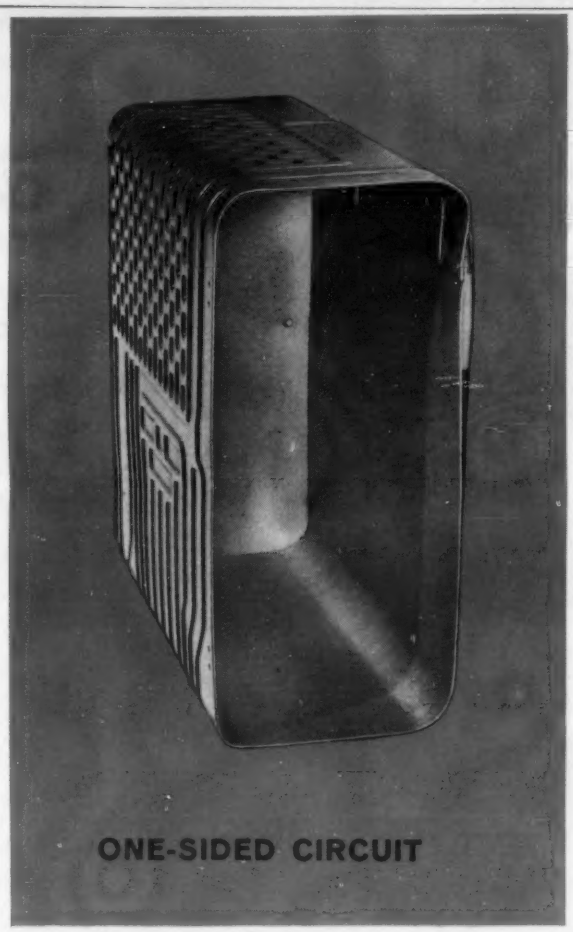
"It is believed most jobs would involve nothing more on the part of the Registrar's office than comparing the prime contractor's list with his copies of valid sub-bids and the contracts actually let.

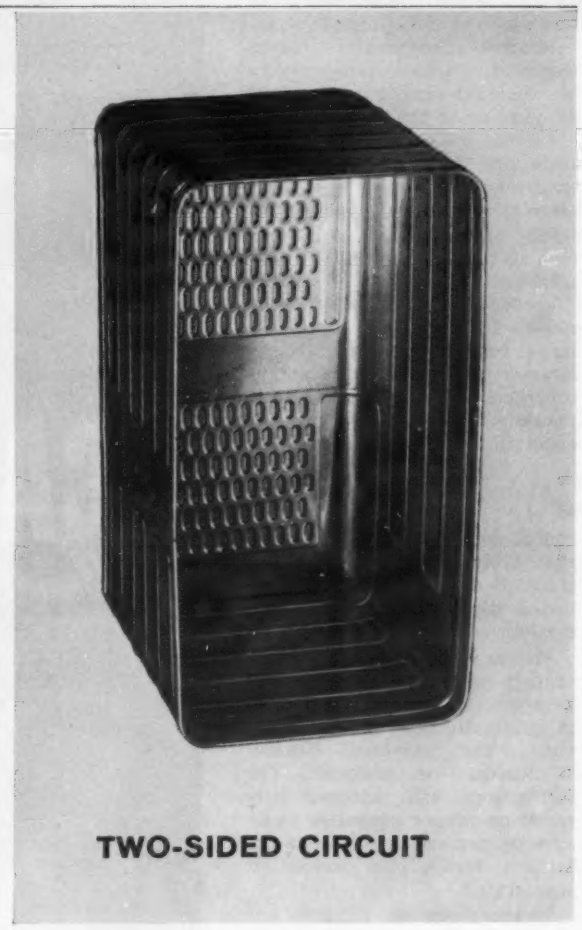
Disciplinary Action

"Prime contractors would be subject to disciplinary action for listing a subcontractor from whom there was no valid written bid, letting a subcontract to a listed subcontractor at any price other than that shown on the valid bid, or on any terms other than those that are standard in the industry and covered as a matter of fact largely by the general conditions of most building contracts, failure to offer a listed subcontractor a written contract within five days after the award, and refusal to submit to the Registrar written verification as provided.

"Subcontractors would be subject to disciplinary action for wording or qualifying a bid in such a way as to be misleading as to its binding nature and intent, for withdrawing a bid after 12 hours before the prime bid opening and refusing to accept a contract at the bid price after having been listed by the prime contractor.

"All licensees would be subject to disciplinary action where there is a showing of fraud, deceit, or for any acts obviously done with intent by either or both parties to defeat the purpose of the Code of





REYNOLDS ALUMINUM
...the design you want

Aluminum Tubed Sheet, developed by Reynolds only a few years ago, is now a standard material for refrigerator evaporators, as well as for many products in other fields. And no wonder.

This lightweight, rustfree sheet with the "built-in tubing" gives the designer complete flexibility in his circuit planning. It eliminates virtually all outside tubing, and many joining problems. It's compact, efficient, and dependable.

With Reynolds Aluminum Tubed Sheet, you can specify the exact circuit you want, the exact type of Tubed Sheet you need . . .

One-Sided Circuit—with passages expanded on just one side, leaving the other side flat.

Two-Sided Circuit—with passages expanded on both sides of the sheet, providing larger tubing.

Standard Alloy—with both layers of the bonded "sandwich" sheet of the same aluminum alloy . . . this is the sheet most widely used by appliance manufacturers.

Bi-Alloy—with one or both layers of the bonded "sandwich" of an extra-strong alloy for surfaces that receive added wear, or where extra strength is required by product use.

Both Reynolds Standard and Bi-Alloy Tubed Sheet are available in one-sided and two-sided circuits.

With Reynolds, you have the added assurance

Verifiable Procedure on public jobs.

"While the above may entail some additional paper work, it is believed that the potential threat of license suspension or revocation by any contractor, whether he be prime or sub-bidder on a public job which could tie up payments, would be a strong inducement for compliance.

"As indicated in the foregoing plan, to implement such a code of procedure it is evident that certain amendments would have to be made to the present sub-bid listing law such as are mentioned above, and in addition there should be a requirement that no more than one-sub-bidder for the same portion of the work is to be listed.

"Also, it is felt that because of the wide divergence of opinions as to what constitutes a proper reason for the awarding authority to allow substitution or the prime contractor to bring in a substitute after failing to list any, the sub-bid listing law should contain specific standards to which the awarding authority will adhere and upon which both prime contractors and subcontractors can reply.

"No other specific recommendations in regard to the sub-bid listing law are made in this report pending receipt of some degree of approval or support of the foregoing plan.

"In the event the foregoing plan is approved in principle by the 10-man committee as a whole, then this subcommittee will undertake to come forth with specific legislative proposals and specific recommendations for amending the sub-bid listing law."

Harry A. Feldbush, Retired Worthington Official, Dies

SHORT HILLS, N. J.—Harry A. Feldbush, 67, retired vice president in charge of engineering for Worthington Corp., died recently in Orange Memorial hospital.

He was general manager of the refrigeration division of the Harrison Works from 1933 to 1940.

Stalemate--

(Continued from Page 1, Col. 2)

amend the California sub-bidders listing law. Both sides found they were wasting time jockeying against each other because the legislature had taken the position they would not referee and said the two groups had to come to agreement between themselves.

The sub-bidders listing law applies to public works for any unit of government within the state. It was enacted because of the legislative efforts of the various sub-trade associations, and the Builders Exchanges, in 1941.

Between 1941 and 1955 the AGC attempted to have it repealed while the CILC attempted to strengthen it.

While the 10-man report was worked out in Los Angeles, the situation from which it developed is due to the successful operation of an increasing number of bid depositories operated by subcontracting associations, mostly in northern and central California.

Some of these depositories have been operating for many years, such as those in Sacramento, San Francisco, and Oakland.

Judicial opinions favorable to bid depository operations providing they met certain standards were handed down in the case of U.S. vs. Bakersfield Construction Industry Bid Depository.

The findings of fact, conclusions of law and judgment, written by U. S. District Judge Gilbert H. Jertberg, were filed May 26, 1958, in the Fresno U. S. court.

Judge Jertberg defined bid peddling and bid shopping. He set fee limits, and set forth other rules concerning operations.

Judge Jertberg was appointed to the Circuit Court of Appeals, and the modified final judgment in the Bakersfield case was written by Chief U. S. District Judge Leon R. Yankwich of Los Angeles dated December 22, 1958.

He provided that upon written request the U. S. Antitrust division may have access to the books and records relating to the subject of the judgment, thus affording supervision to assure carrying out the court's judgment.

Subcontractors Had Voice In Sub-Bid Listing Program Through CILC

SACRAMENTO, Calif. — The subcontractor in California had a voice in the meetings with Associated General Contractor representatives at Los Angeles because he supports his own legislative organization — the Construction Industry Legislative Council.

The report of the 10-man committee on the sub-bid listing program was possible because CILC maintains a year-round program; has a full-time legislative advocate with headquarters here, Leslie Miller; meets every month; has the active support of the able representatives of its association members and builders exchanges:

CILC affiliates include:

California State Builders Exchange which has 21 member exchanges.

Associated Plumbing Contractors of California.

California Council of Refrigeration & Air Conditioning Contractors Associations.

California Lathing & Plastering Contractors Association.

California Conference of National Electrical Contractors Association.

Painting & Decorating Contractors Association.

Roofing Contractors Association of California.

Sheet Metal Contractors Associations of California.

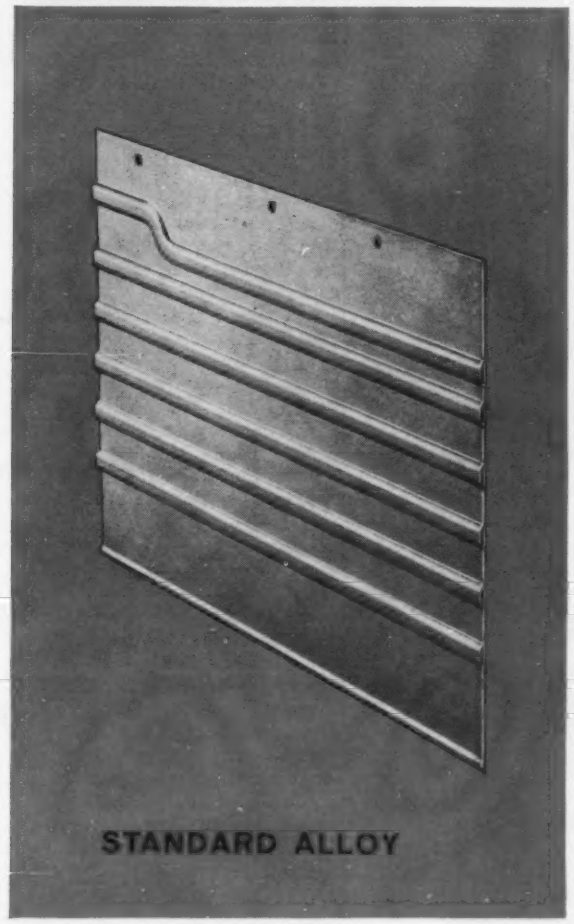
Chadwick Is Contractor Registrar of Calif. Licensing Board

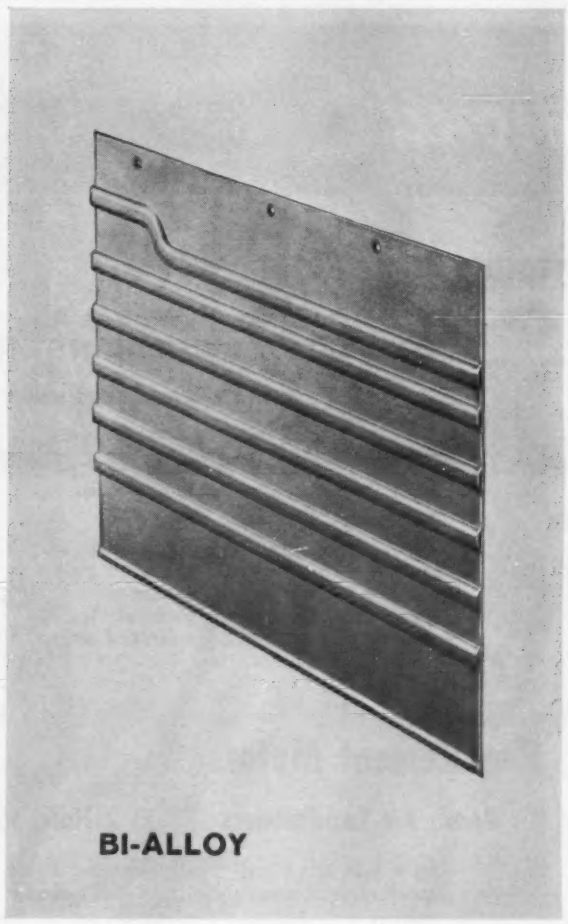
SACRAMENTO, Calif.—John E. Chadwick has been appointed, and taken office as, registrar of contractors with the Contractors State License Board.

The board had its largest revenue for the fiscal year ending June 30, during which 86,806 contractors held licenses and board revenues totalled $1,456,599. This was 2,312 more licenses and $450,000 above the previous fiscal year which exceeded previous years.

Since 1957 Chadwick was legislative representative and manager of the Sacramento office of the Northern & Central California chapter of the Associated General Contractors of America.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.





TUBED SHEET™
...the kind you want

of years of experience in fabricating Aluminum Tubed Sheet, plus Reynolds extensive facilities.

You'll find most of the leading makes of refrigerators use Reynolds Tubed Sheet for evaporators, but the applications of this material do not end there. Its flexibility, compactness, and efficiency are going to work in aircraft, electronic cooling devices, vending machines, and missile components, to name just a few uses.

For details on the properties, characteristics of Reynolds Tubed Sheet, or on Reynolds fabricating facilities, call your local Reynolds office, or write: *Reynolds Metals Company, P. O. Box 2346-AS, Richmond 18, Virginia.*

Watch Reynolds new TV show "Harrigan & Son", Fridays, starting October 7; also, "All Star Golf", Saturdays, resuming October 15—ABC-TV. And on Sunday, October 16, be sure to see the exclusive showing of America's new 1961 cars on The National Automobile Show, direct from Detroit over CBS-TV, 6 to 7 P.M. EDST.

How To Sell Heating Successfully (1)

Dealers' Biggest Failure: They Don't Talk to Prospects Here's How Janitrol Suggests They Overcome This Weakness

By Frank J. Versagi

DETROIT—"No matter how good a salesman you are, you will be a better one if you use an organized presentation with charts, proposals, and pertinent photographs."

"No other department in a dealer's operation can be as effective as a good service department in getting the great modernization market that is opening up in heating."

These basic premises — the techniques of selling and the paramount importance of a service department — were expounded and exemplified repeatedly at "Forum #7," one in a series of dealer training meetings being offered by Janitrol Heating & Air Conditioning Div., Midland-Ross Corp.

Laying the groundwork for the company's talk on selling, Harry C. Gurney, general sales manager, stressed "Don't come to think of markets as things or statistics. Markets are people. All markets are local. And an alert manufacturer's advertising and promotion activity considers the comprehensive, national market while remaining flexible enough to work with the local market."

Gurney specified that the heating market is of two kinds —"dynamic and static." In the dynamic classification, he listed all the new homes being built, remodeling jobs, and replacement heating installations. "Everybody is fighting for this active market and competition is vicious," he offered.

What Is 'Static' Market?

On the other hand, there is the static market, "the potential market which is composed chiefly of consumers who feel that today's heating products are exactly the same as they were 20 years ago, the consumers who—when they think of a heating system at all—think of a pile of sheet metal with a burner in it."

Off the floor came a suggestion that "the heating industry is also suffering from the fact that for 20 years we have been saturating the market with low quality heating systems, and the customer is justifiably wary."

A similar idea was expressed from another viewpoint by Ray F. Horan, director of the series of Janitrol forums, who criticized heating industry activity as too much centered on nuts and bolts.

"Customers accept the products; they are not afraid of them. But they are afraid of shoddy installation and service which result in low quality jobs," Horan suggested.

Both Gurney and Horan were joined by Richard E. Ireland, manager of trade advertising and sales promotion, in the common opinion that summer air conditioning can help heating sales.

"The aggressive sales of cooling systems can set up markets for new heating jobs, humidifiers, dehumidifiers, filters. When you handle both businesses, you can aim at the customer's primary interest; then you stand the best chance of getting his other work," said Ireland.

Ireland outlined several techniques of acquiring prospects for heating jobs. "Use the user" is a major approach to prospecting, the promotion manager stated.

"Your own satisfied customers supply leads if you work with them properly. It may be necessary to offer some small reward to customers for leads which result in sales."

Why User Leads Are Best

The major advantage of leads acquired from satisfied customers, according to Ireland, is that they are already "partially qualified. They are interested; their neighbors (your customers) have already decided that the prospect can afford the heating system; your company has been given the jump on competition."

Ireland stressed Janitrol's belief that the dealer's reputation in his community is of paramount importance.

"Therefore, our advertising is aimed primarily at building your reputation. Much of our literature and advertising mats prominently display the dealer's name and include only a short paragraph or reference to the fact that the dealer recommends Janitrol."

Janitrol has prepared a new mailing kit for dealers which the company recommends be mailed and handled by the dealer himself, so that he can control distribution and follow-up.

Ireland suggested that, in some areas, using the mailing piece as a handbill might be more efficient, since for a small expense it is possible to saturate three, five, eight-square blocks or any neighborhood one desires. He also suggested that some mailing pieces are good for handing out at fairs and such public gatherings.

"Prospecting is important," agreed Horan, "but much of our trouble comes not from having too few prospects, but from not selling the ones we have."

Talk To Prospects

The greatest selling weakness of dealers, in Horan's opinion, is that they do not "talk to prospects." He cited several examples of attempted sales wherein the customer was told almost nothing about the product, the manufacturer, the services offered.

To overcome this weakness, nothing is so effective as a thoroughly prepared and closely followed, presentation, Horan insisted. He went through a typical presentation to a customer using an outline and notebook prepared by Janitrol.

"Never give the price right at the beginning. Start with a description of the heating system, using understandable terms. Talk to the husband and wife together, sitting between them, and directing both their attention to your presentation."

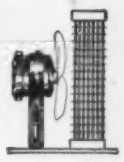
Horan strongly recommends that pictures of the company personnel—the boss, the chief engineer, the office girl—be in-

THREE Redmond SALESMAKERS

1. Condenser Fan Replacement Motor

Your No. 1 Condenser Fan Motor for Replacement in the Air Conditioning and Refrigeration Fields.

Condenser Fan Motor 1½ Through 16 Watts.



Shorter Length Makes AM-4 COMPLETELY INTERCHANGEABLE

Stock one motor to accommodate all mountings

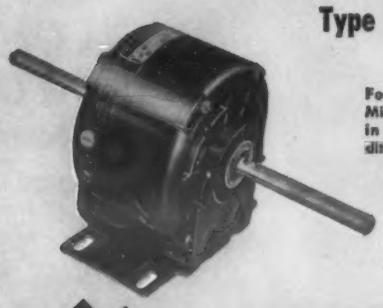
1. The AM-4 will replace all rear-mounting motors.

2. You can replace motors with peripheral mountings.

3. All-Angle Operation: designed for all-position mounting, vertical shaft up, shaft down, or any angle. Now you stock only one motor. The extra large oil reservoir is permanently sealed for lifetime lubrication—and guaranteed not to leak oil in use or shipment.

2. Air Conditioning Replacement Motors

Type AY for Room Air Conditioners 1/3 to 2 Horsepower



For Replacing the Millions of Motors in Unit Air Conditioners.

Now you need only one motor for both two-speed replacements and single-speed units. These motors are designed for easiest replacement—the resilient mounting bases raise the shaft to the desired levels, and the double-shaft extensions are long enough to cover all applications. With Redmond's "Quick Disconnects" you just put in the motor and then plug in the leads. The splash-proof construction protects the motor from condensate.

3. Kitchen Ventilator Fan Replacement Motor

Totally Enclosed TL-270

Now You Stock Only One Motor to Cash in on the Profitable Market for Kitchen Ventilator and Range Hood Motors.

Here is a motor designed specifically to meet the increasing demand for kitchen ventilator and range hood replacement motors. You can power all 8" and 10" blades with this totally enclosed MicroMotor and cash in on a profitable replacement market.

An outstanding feature of this fine motor is the totally enclosed case design which eliminates the possibility of dirt passing into the windings.

CC Redmond DISTRIBUTORS DIVISION REDMOND COMPANY, INC., OWOSSO, MICHIGAN

cluded in the presentation "to prove to the prospect that you are not operating out of a phone booth, that if you drop dead on your way back to the office, someone else will be there to take care of his order." Similarly, he suggested pictures of the shop, offices, showroom, and trucks.

Take Your Time With Presentation

"Take time with your presentation. There isn't a five-minute presentation worth a nickel," Horan claimed. "You need that long just to clear everything else out of our prospect's mind—his work, his domestic concerns. Half an hour's good continuous talk and presentation has an almost hypnotic effect.

"In the final analysis, orders are placed on the basis of confidence. A good presentation will give the prospect the confidence that you know your business and will be able to take care of him."

Important Role of Unit Heaters Cited

Gurney spoke of the important role which newly designed unit heaters can play in obtaining business in commercial and industrial concerns and also in homes.

"Unit heater business has traditionally gone the bid road —larger jobs through contractors," Gurney stated. "But it is possible for the dealer to get remodeling jobs in existing commercial and industrial establishments.

"Unit heaters are a natural for many of these, since it is frequently impossible to expand or extend the existing heating system economically. Too, unit heaters are a natural for zone control of several plant departments which operate at different times and under different conditions."

Domestic Unit Heater Market Growing

The domestic market for unit heaters is growing, according to Gurney. "Attached garages, when heated with a unit heater, become workshops and recreation rooms; it is possible to wash the car in winter, to melt snow and ice off it.

"One doctor who makes night calls, has the on-off switch for his garage unit heater by his bed. He turns it on when he takes a call; by the time he is dressed and into the garage, it is warm."

In talking about the use of unit heaters in garages and add-on rooms, closed-in porches, and the like, Gurney emphasized that "attempts to extend existing heating systems to handle the increased load most often prove uneconomical and impractical."

The concluding segment of this report on Janitrol Forum #7 will discuss the role of the service department in creasing a successful heating dealership.

(To Be Continued)

REPRINTS
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Radiant Glass Panel Jobs Lead

Wisconsin Electric Power Spokesman Outlines Heating Progress In Milwaukee

MILWAUKEE — Of a few hundred electric heat installations in this city, "most are of the radiant glass panel type. None is of the central, 'electric furnace' type," according to Bruce Burgess, heating specialist for the Wisconsin Electric Power Co.

The first electric heating system in the Milwaukee area, an experimental type, was installed in the mid thirties. The electric company's first real experience started in 1948 and 1949. In 1950, 25 electric heating systems were installed. All this time electric heat was sub-metered, and a demand charge added due to the extra load.

"In 1958 we really began to awaken to the possibilities electric heat had to offer," said Burgess. "In that year 150 electric heat installations were made. In 1959 there were about 100 new installations, and there have been 40 so far this year."

Although the electric company has run some newspaper ads designed to tell people that electric heat is here, they have carried on no "real big" promotion. "There has been sufficient interest without, and we don't want to get ahead of ourselves," maintained Burgess. "Like any new thing, one bad job can do a lot of damage. A lot depends on the installation."

Burgess cited an example of a 25-unit motel which was heated with gas, as an example of what can be accomplished. Seven new units were added, and were heated with radiant glass panels and convecting baseboard electric heat. When shown the operating results over a period of several months, the owner claimed the new units were cheaper to heat than the original units.

Another example mentioned by Burgess was a home recently built in Milwaukee which was designed specifically for electric heat. It is a 2,700-sq. ft. home with a heated basement. The owner claims to heat his home for 11 to 12 cents per sq. ft. This is due in part to careful insulating and moisture protection.

According to Burgess, the Wisconsin Electric Power Co. recommends an insulation formula of 8-4-4; 8 in. in the ceiling, 4 in. in the walls, and 4 in. in the floors. This is based on an insulation factor of .27. When all recommendations are followed, they expect an operating cost of 22 to 23 cents per sq. ft.

Although operating costs may be somewhat higher for electricity than for some other fuels, Burgess feels that electricity offers inherent advantages that will more than overcome this difference.

"First of all," he said, "it offers a clean safe fuel, with no storage problem and no danger of explosion. It gives quiet, unobtrusive comfort. And, what is more easily controlled than electricity?"

Burgess thinks that electric heat's biggest impact will be in up-grading the heating industry as a whole. Manufacturers of the other types of heating systems will have to make improvements, he feels, or they will be losing jobs to electric heat.

Burgess does not claim that electric heat is the answer in all cases.

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They'll Do It Every Time

by

Jimmy Hatlo

THE WAY BULLDOZE BRAGS ABOUT HIS CONNECTIONS, NEIGHBOR FUTELESS THOUGHT BULLY COULD PAVE THE WAY FOR YOUNG FUTELESS...
JUNIOR, HERE, WOULD LIKE TO GET INTO TV— AND SINCE YOU KNOW A LOT OF PEOPLE...
I KNOW ONE OF THE BIGGEST MEN IN UNMITIGATED BROADCASTING COMPANY.... JOE SCHLOSHER—GO SEE HIM— TELL HIM I SENT YOU...
SO JUNIOR GOES TO SEE THE BIG MR. SCHLOSHER... AND AN HOUR LATER HE FINDS HIM...
I'M—UH—LOOKING FOR MR. SCHLOSHER—I'VE BEEN ALL OVER THE BUILDING...
I'M SCHLOSHER... WHAT YOU WANT, HUNH, KID?
THANX AND A TIP OF THE HATLO HAT TO MICKEY ALPERT, BLACKSTONE HOTEL, CHICAGO, ILL.
9-3
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Have We Borrowed Too Much? Candid Reappraisal of Our Economic Prospects

WHAT HAPPENED to the "soaring 60's" concept?

Nothing much, really, outside of the shattering of unrealistically roseate predictions.

Business is good, but the excitement of a BOOM-M-M hasn't occurred.

Retail sales are reasonably satisfactory. American industrial growth is progressing at a normal (healthy but unspectacular) rate.

People are eating well, vacations are growing longer. Golf courses and swimming pools, baseball stadia and cruise ships—plus baby carriages—aren't empty!

Mass psychology of consumers and businessmen—rather than production and sales statistics—therefore comprise the best clue to our economic prospects.

That "psychology" presently is optimistic. On the other hand, and however:

The American economy has become more and more dependent upon a steady expansion of credit—which means willingness of consumers to borrow in order to purchase more goods, and of manufacturers to go into debt to expand production facilities.

Might we mention, also, oppressively overhanging government debts?

Demand for consumer and investment credit notoriously is volatile. It knees down to the mood of people-at-large.

Irrational fears and hopes often are as important as sober analyses of business data and statistics, such as that Gross National Product shibboleth, in that case.

That's why it is argued that business, government, and voters should take heed of presumably dangerous weaknesses in the politico-economic foundation upon which the prosperity of the past 15 years has been erected.

Such weaknesses include: heavy reliance on increasing personal and family indebtedness, our agricultural mess, tremendous growth in state and national bureaucratic overhead, a tendency to mistake the statistical abstractions of Gross National Product figures as a means of national strength, and a wide gap between international balances of payments and over-all reserves.

All these problems can be solved, if voters and consumers have the courage to be sensible.

However, borrowing has its limits for individuals, corporations, and municipalities —and, to some extent—even for our presumably omnipotent Federal government.

In short, borrowing is not a permanent solution to anybody's aspirations.

A consumer will borrow so long as he believes that his employment will continue. He will try to pay back some of his debts if he fears layoffs or a recession. Same situation holds true for corporations, in a different sphere of values.

By elimination of unioneered featherbedding, subsidies for farmers, plus cancellation of too much unnecessary bureaucratic paper shuffling, taxes could be reduced while the actual standard of living of our citizens increased!

Most important, *debts would be reduced all across the board.*

Every year the U.S.A. needs 7 to 8 billion dollars to pay for our military establishments abroad, for economic aid to underdeveloped "allies," and for private investments and tourism "overseas."

Net payments which foreign nations send to us, in the form of interest and dividends on our foreign investments and loans, and for services and tourism, total from $2.5 to 3 billion.

That leaves somewhat more than a $5 billion deficit to be covered by an excess of exports over imports.

Said deficit could be erased by reducing our foreign giveaways—but that stringency would be strategically, politically, and economically inexpedient.

Better idea: Stop senseless giveaways to favored political voting blocs in *this* country.

To repeat: the American consumer is optimistic. He's willing to borrow against his future.

His "house of cards" may collapse, however, if governmental bodies continue to spend and borrow profligately.

Increasing national debt is ominous to personal debtors and corporate borrowers.

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AIR CONDITIONING HEATING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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VOLUME 91, NO. 2, SERIAL NO. 1,642, SEPTEMBER 12, 1960

From the Files of the News

25 years ago . . .

Second annual convention of the Refrigeration Service Engineers Society scheduled for Oct. 23-25 in Detroit. . . . Sear, Roebuck announced plans to market prefabricated homes priced at $2,900 to $4,200, complete with a winter air conditioning system providing automatic oil-fired heat, and an air cleaning and circulating system.

An article discussing some of the effects of air conditioning on people, written by Dr. Lloyd Arnold of the University of Illinois College of Medicine, received wide circulation in the public press. Dr. Arnold warned against overcooling, urged a 10° differential between indoor and outdoor temperatures but said the drop in relative humidity could go as high as 40%. He urged that research be done on the reaction of humans to air conditioning. . . . A comment on the article, written by W. W. Rhodes, Kinetic Chemicals, Inc., called for the establishment of comfort standards.

A commercial refrigeration compressor designed with trunk-type pistons was introduced by Parker Mfg. Co. . . . A Phoenix, Ariz. veterinarian who runs a "dog hospital" installed air conditioning for his sick "patients" and found the effects so salutary that he's planning to air condition his own home.

An official of the Southern Conference of Building Owners and Managers believes that "development of the air conditioning industry will pull us out of this depression . . . promises to do for this age what the automobile industry has done in the past." . . . A Whittier, Calif. mushroom farm credits air conditioning for extending the mushroom growing season by providing the necessary controlled climate in which to develop the mushroom cultures.

10 years ago . . .

Establishment of a joint committee on essential activities and critical occupations was announced by the Secretary of Commerce and the Secretary of Labor. The committee will review lists currently used by the Department of Defense in considering delay in the calling up of reservists and members of the national guard. . . . Federal Reserve Board is ready to announce new Regulation W controls on instalment credit just as soon as President Truman signs the Economic Controls bill.

Air conditioning sales in Detroit are up 23% over '49, with the 5-hp. unit most popular, 208 having been installed out of the total of 445 installed in the first six months of '50, according to a tabulation made by the NEWS on the basis of permits issued. . . . Converting drugstores to self-service has proved a virgin field for sales for Davison Associates, Toledo air conditioning and commercial refrigeration distributor.

An Albany, N. Y. ordinance restricting use of city water for air conditioning permits systems of 5 tons' capacity or less to use water-cooled condensers so long as they do not use more than 1.5 gals of water per minute per ton of refrigeration, with systems larger than 5 tons' capacity required to use water conservation devices. . . . A Kroger market in Clayton, Mo. has 66 ft of self-serve meat cases and 14 fish and poultry cases with refrigeration supplied by 11 remote condensing units ranging from ⅛ hp to 3 hp in size. Five 5-ton packaged air conditioners condition the store proper with one 5-ton unit handling the room in which meat is processed.

The New York City Better Business Bureau issued a warning against furnace repair service rackets. . . . Reports on current experiments in heating homes by the rays of the sun presented at a seminar at M.I.T. indicated that there is much research and development yet to be done before solar heating of homes is practical anywhere except in the southernmost tier of states.

THIS IS ONE THING ELIZA DIDN'T DO

Paragon Electric Co.
1600 Twelfth St.
Two Rivers, Wis.

Editor:

Your-absent-mindedness-that-goes-with-old-age, is beginning to show.

It was Louisa May and not Eliza Alcott who wrote *Little Women*. Remember, it was Eliza who ran off with that city slicker who came through town selling those iceless iceboxes and was never heard from again.

W. A. PETERSON,
Western Reg. Mktg. Mgr.

P.S. I am just old enough to have read *Little Women* but not old enough to have forgotten who wrote it.

WEST COAST FIRM INSTALLS ICE RINKS

Beverly Refrigeration, Inc.
6916 Melrose Ave.
Los Angeles 38, Calif.

Editor:

I enjoyed reading your interesting write up in "Inside Dope" July 25, 1960 issue, on the installation of the portable ice skating rink made by Mr. Charles R. Beltz in the NBC-TV studios in New York.

It might be interesting to you to know that we have made approximately 12 different installations such as you describe for color and black and white TV on the West Coast in the past eight years.

We have installed portable rinks for NBC, CBS, and ABC plus rinks for major studios such as 20th Century-Fox and Universal International.

We also have made close to 100 separate installations for home shows, fairs, exhibits, parades, etc., even several installation in such unlikely spots as Hawaii and Las Vegas plus some work for the Squaw Valley Winter Olympic games.

We have nine completely portable rinks available on a rental or lease basis, ranging from as small as 10 ft. by 10 ft. to as large as 60 ft. by 160 ft.

We have found this "fringe" business quite interesting and challenging, as each installation has a new and different problem. We have just completed a new rink floor for the largest portable ice rink in the world, owned by Mr. John Harris of Ice Capades.

As you mentioned in your article, the person or company that install the ice to make the ice shows and exhibits possibly rarely receives any recognition. I am sure there are other firms such as ours and Charles Beltz that make a semi-specialty out of this section of the refrigeration industry.

Thanks for your always interesting, informative, and amusing column.

WILLIAM R. ULLRICH,
President

P.S. The first rink installed in a TV studio on the West Coast, for a national show, was in 1949 for ABC.

ONE-MAN SERVICE COMPANY LIKES ARTICLE ON CAPACITORS AND HOW THEY WORK

Brooks Service Co.
Fort Worth, Texas

Editor:

What has prompted this letter is the article by Frank J. Versagi on Capacitors, in the NEWS dated July 11, 1960. I would like to shake his hand; because he has presented tthe very important role of the capacitors and how they work.

I was a factory service engineer for two years. My job was to drive, fly, horseback, etc., to their dealers over five states and help them when they were in trouble. I also taught dealer schools at the factory and in the field. I know the problem today is not so much the service personnel but their teachers.

I find that the instructors are teaching what they think is true but is not. I also have heard engineers explain technical problems that were so complicated with XYZ equal 3.1416 that the students and service people were unable to grasp the meanings. Today a young man interested in service is frightened out of it before he has worked more than a week.

Today I have a one man (me) service company.

V. W. BROOKS

THANK YOU, HALLELUJAH, AMEN

National Warm Air Heating & Air Conditioning Association
Cleveland, Ohio

Editor:

All that I can add to your excellent editorial, "Let's doff our hats . . .", Aug. 22nd issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS is: Thank you, Hallelujah and Amen.

J. M. MARTIN,
Managing Director

WATER COOLER
3 Gallon Bottle Type
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. . . economical . . . efficient . . . streamlined . . . space-saving . . . ⅛ H.P. Tecumseh hermetic unit . . . five year warranty on refrigeration cycle. . . .
Remcor Products Co.
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manufacturers of water coolers since 1949
REMCOR Model CB-2A
also available:
10 Gallon Pressure Type Cooler
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Century motors circulate warm air

Century motors are helping circulate warm air in hundreds of thousands of domestic furnace systems like the one shown here. Why are Century furnace blower motors so popular? The answer is simple . . . quiet and dependable operation. You make fewer nuisance service calls. You make more profit on each job with Century motors.

Here are some of the features that help make this record possible:

FOR DEPENDABILITY: Insulation consists of heavy "Mylar" slot cells and high temperature baking varnish . . . combination gives high mechanical and electrical strength. Lubricating method is designed to withstand warm air furnace operating conditions. And other features like the trouble-free governor and automatic thermal overload protection increase dependability.

FOR QUIET OPERATION: A cushion base with resilient rings reduces transmission of sound vibrations . . . dynamically balanced rotor gives smooth operation . . . sleeve bearings with shaft floating on film of oil means belt can be pulled up without bearing rumble . . . all contribute to quiet operation of Century furnace blower motors.

FOR MORE INFORMATION: contact your nearest Century Electric Sales Office or Authorized Distributor.

Century Electric 48-frame cushion base motor for furnace blowers. Also available: two-speed motors for combination heating-air conditioning units; and 56-frame motors when ½-horsepower capacity and larger is required.

CENTURY ELECTRIC COMPANY
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Century 60-8

Glasco Votes Sept. 17 On Acquisition by Universal Match

MUNCIE, Ind. — The special meeting of Glasco Corp. stockholders to vote on the proposed acquisition of the company by Universal Match Corp., St. Louis, will be held Sept. 17 at the Glasco headquarters offices here, according to the notice of meeting that was mailed to stockholders.

If they approve the transaction, Glasco stockholders will receive two shares of Universal common stock for each three shares of Glasco common stock they hold.

A total of 211,667 shares of Universal stock will be required to effect the transaction, increasing the total number of Universal common shares outstanding to 4,508,610.

In a letter to stockholders, Abbott L. Johnson, chairman of the Glasco board of directors, said the board unanimously approves and recommends the proposed transaction, and he also reported that the company's management recommends approval.

Both Glasco and Universal are in the vending business. Glasco manufactures pre-mix dispensers and vendors for "Coca-Cola" and other soft drinks, fresh aerated milk and milk shakes, hot instant coffee, and sandwiches, as well as small refrigerated cabinets and other food service equipment for restaurants, it was pointed out.

Universal Denies Merger Talks with Glen Alden Corp.

NEW YORK CITY—Reports that Universal Match Corp., St. Louis, has been discussing a merger with Glen Alden Corp., parent of The Mathes Co., were denied recently by John L. Wilson, president of Universal Match.

The New York *Herald-Tribune* said Wall Street reports had it that Universal would acquire Glen Alden through an exchange of stock on the basis of three Glen Alden shares for one share of Universal.

But Wilson told the newspaper that his company had "no merger discussions under way with any one."

'Knights of Road' Will Herald Silver Shield

MADISON, Wis. — First step in formation of the Silver Shield "Knights of the Road" occurred here recently when 23 field representatives and executives of Research Products Corp. were given the full Silver Shield story.

Speaking for the National Warm Air Heating & Air Conditioning Association was James D. Nolan who described the Silver Shield Manufacturers Program to establish a liaison representative in every firm in America that belongs to the national association.

No Air Conditioning? Methodists Abandon Richmond for Cool Norfolk

RICHMOND, Va.—This city's lack of an air conditioned auditorium big enough for crowds of more than 1,000 has resulted in the loss of the 1962 Virginia Methodist Annual Conference.

Norfolk does have such a facility—a 2,400-seat, air conditioned civic auditorium, and the Methodists have decided to move their conference there.

Mayor Woodward, when informed by Dr. Carl Sanders, Richmond district Methodist superintendent, of the decision to move their annual conference from Richmond to Norfolk, replied that he was very sorry and that he hopes an air conditioned auditorium can be built in the new civic center here.

It will be recalled that the City Planning Commission here declined several years ago to recommend air conditioning for the Mosque because it felt the cost, estimated at $600,000, would not be justified.

The largest air conditioned meeting room in Richmond at present is the Virginia Room of Hotel John Marshall, which has a capacity of about 1,000.

Commented Edmond H. Brill, Jr., convention director for the Richmond Chamber of Commerce: "That is adequate for many conventions, but a trend exists towards bigger meetings.

"The Richmond Chamber has been aware of this problem, and it has given us great concern. The Methodist convention would have meant a great deal to Richmond during a dull convention period. Summers are usually dull for conventions, and the lack of air conditioning in the Mosque doesn't help."

Brill added that the convention would have meant about $137,000 worth of business to Richmond hotels, restaurants, and retailers.

Hawk, Clothier Named Ansul Sales Agents

MARINETTE, Wis. — Ansul Chemical Co. has announced the appointment of refrigeration products sales agents in the New York area and on the West Coast.

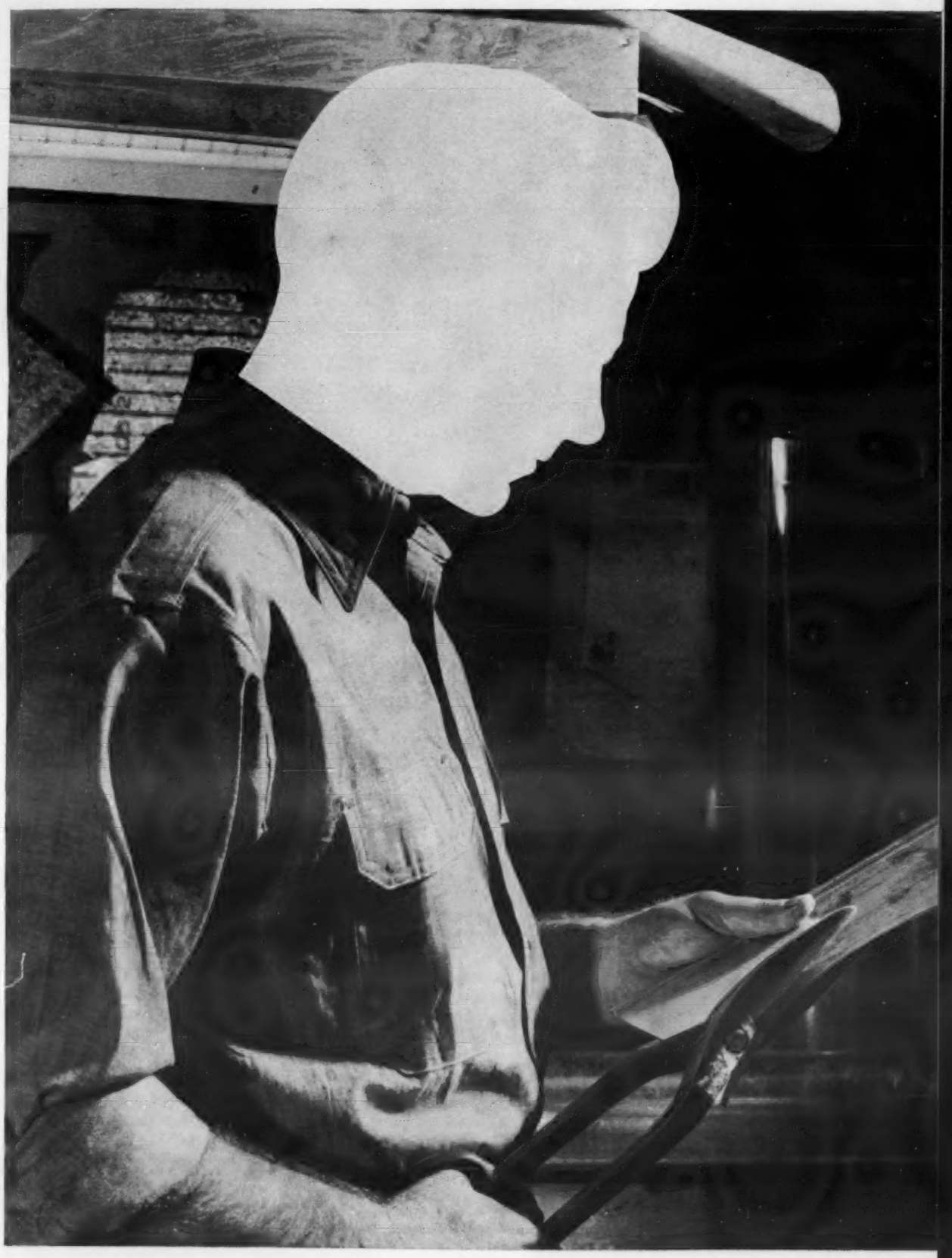
Frank C. Hawk of Hawk Engineering Co. is Ansul's new agent for northern New Jersey and metropolitan New York. On the West Coast, Van D. Clothier of Van D. Clothier, Inc., will be Ansul's sales agent.

The headquarters of Van D. Clothier, Inc. is located at 1025 E. 16th St., Los Angeles. President Van D. Clothier has been representing manufacturers selling to the refrigeration industry on the coast since 1925.

Hawk Engineering is located at 103 E. Front St., Red Bank, N. J. President Frank C. Hawk has had 25 years of experience in the refrigeration industry.

Judelson Gets OHI Post

NEW YORK CITY—Norman B. Judelson, manager, marketing research, American-Standard Air Conditioning Div., has been named chairman of the Oil Heat Institute of America's Market Research Committee, it was announced by Fred Heaney, OHI president.



300 Expected To See 30 Refrigeration Apprentices Graduate Sept. 17 In L. A.

LOS ANGELES—Richard T. Hanna, California State Assemblyman for the 75th District, will be the featured speaker at apprentice graduation ceremonies on Sept. 17, sponsored by the Certified Refrigeration & Air Conditioning Foundation (CRAC).

R. T. Hanna

More than 300 labor and management representatives connected with the refrigeration and air conditioning industry in Southern California, are expected to attend the event at the Disneyland hotel.

The graduation of 30 apprentices as journeymen refrigeration fitters will climax a five-year apprentice development program sponsored by the industry in the Southern California area.

According to CRAC, the graduation marks the fulfillment of a joint industry and labor effort to increase the number of trained, qualified journeymen to meet the public demand in service and installation of air conditioning and refrigeration equipment.

Registration for the journeymen certification training program was recently completed for the fall term, according to Harry L. Bowe, coordinator of the apprentice training program.

Bowe said that enrollment deadline for the journeyman refrigeration fitters who will be taking courses for the first certification or those seeking recertification was Sept. 7.

In addition to providing skilled manpower for the installation and servicing of refrigeration and air conditioning systems in the area, the program also assists in providing the journeymen with up-to-date techniques and new developments in refrigeration and air conditioning equipment.

"Under the certification program, the journeymen are instructed by qualified men selected from key positions in the industry," it was pointed out. "The classes are taught at night in convenient, nearby school classrooms in order that journeymen can attend after working hours."

Transistors Replace Vacuum Tubes In M-H Electronic Control Panels

ABOVE: C. M. Sanders of Minneapolis-Honeywell's Commercial Div. shows how tubeless electronic control panel matches old in size, shape, connections.

ALL TRANSISTORIZED amplifier (right) replaces vacuum tube version, held by JuDee Michaelson, in the entire line of M-H electronic temperature control panels. Company says it eliminates tube failure, lowers power consumption, lowers maintenance costs.

MINNEAPOLIS—Transistors have replaced vacuum tubes in the entire line of Minneapolis-Honeywell electronic temperature-control panels developed by the firm's commercial division.

The panel's new transistorized amplifier is electrically and physically matched — in size, shape, and connections—to the old vacuum-tube amplifier, making possible "plug-in" replacement on old panels in just a few minutes and without rewiring, it was stated.

By eliminating vacuum tubes, company engineers pointed out, Honeywell has overcome the biggest problem of electronic temperature controls—tube unreliability.

Because there is no accurate way to determine the life expectancy of a vacuum tube until it fails, it can burn out without warning, putting an entire temperature-control system out of commission, it was noted.

In addition to longer life expectancy, the new transistorized amplifiers will consume less power and give off less heat, contributing to the longer life of other panel components, according to Honeywell engineers.

The longer life of transistors is cited in the announcement as "an addition to the many benefits of the Honeywell electronic temperature control system."

Despite increased manufacturing costs of the transistorized amplifiers, Honeywell said it is making them available at the same cost as the vacuum-tube unit.

Further information may be obtained by writing to C. M. Sanders, product development, Commercial Div., Minneapolis-Honeywell Regulator Co., 2747 Fourth Ave., S., Minneapolis 8.

The man who had to become an executive while using a pair of tin snips

Finger callouses once marked the successful man in your field. Not so any more. The heating and air conditioning business "grew up" almost overnight.

Suddenly you had to be many other things besides a master mechanic. You had to be a merchandiser, purchasing agent, cost accountant, public relations expert, sales developer—and assume a role of leadership in the community.

Lennox recognizes your new stature—and your new problems. As a result, Lennox and its dealers work closely—like partners—in finding answers and practical solutions. Because of this close co-operation—both Lennox and its dealers have grown tremendously.

If you aren't getting this kind of help from your supplier, it's time you phone or write for the full Lennox story. No obligation.

LENNOX *World leader in indoor comfort for homes, business, schools*

Lennox Industries Inc. founded 1895 • Marshalltown, Iowa • Columbus, Ohio Syracuse, N.Y. • Fort Worth, Texas • Salt Lake City, Utah • Decatur, Ga. • Los Angeles, Calif. Des Moines, Iowa • Lennox Industries (Canada) Ltd. • Toronto, Montreal, Calgary and Vancouver

Inside Dope

By GEORGE F. TAUBENECK

(Continued from Page 1)

patriots who thought that a constitutional monarchy was a good idea!

However, George Washington flatly refused to be crowned King George I.

George deemed that he had his hands full as President of a 13-state U.S.A. (with a population of four million pioneers).

"These public meetings with reference *to* and *from* different departments of state are as much, if not more, than I am able to undergo," he wrote in 1790.

During the last 170 years, the U.S.A. President's job has grown more rapidly than the U.S.A. itself.

Father of Our Country, during a typical year of his administration, signed 44 laws and one executive order. President Eisenhower is maintaining an average of 944 laws and 60 executive orders signed each year!

Washington granted nine pardons and gave Federal jobs to 65 persons in 1791. Ike has averaged 1,112 pardons and 43,537 jobs (including military and Post Office appointments) annually.

Washington's first budget was written on a single sheet of paper. The current Eisenhower budget runs to 1,030 pages, with a 188-page appendix.

Most Man-killing Job Anywhere

Today's President holds down not one job, but five—and any one of the five could fill an eight-hour day. He is:

Head of State: the nation's chief ceremonial officer—an assignment which involves everything from presiding at banquets for visiting dignitaries to throwing out the first baseball of the season for the Washington Senators.

Chief Diplomat and Leader of the Free World: our most responsible representative in dealing with all other nations, and in trying to prevent the end of the human race in a nuclear holocaust.

Commander-in-Chief of our Armed Forces. (Nuff said!)

Chief Policy-Maker: with power to exercise tremendous influence on lawmaking by initiating or amending bills, by pushing legislation through Congress, or by vetoing politically-inspired Acts of Congress which could be dangerous.

Boss of all Federal employes: (there are 2,718 in his own Executive Offices alone) and last-resort law enforcement officer.

Also, of course, nominally The President is the head of his political party, and should keep its welfare in mind. (Ike has delegated this responsibility to Nixon.)

Great Man's Goals

However, a President's primary commitment is attached to two goals, upon which most people in both parties — and most "independent" voters—are agreed. These are:

1. *In foreign policy,* to work towards freedom (of men and nations) throughout the world; to be sincerely peaceful, and, at the same time, "keep our powder dry" should war become inevitable or unavoidable.

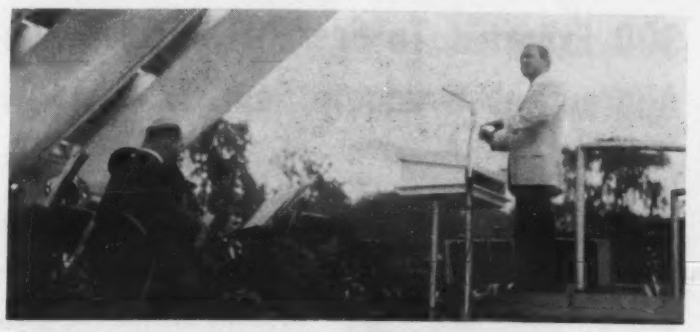
2. *In domestic policy,* to insure economic prosperity for all, with equal and available opportunities to work (according to ability) at adequate wages; to plan for reasonable economic growth which will keep an enlarging labor force busy and living standards rising; to protect every citizen from disaster; and to keep the dollar's value reasonably stable.

Freedom of Choice?

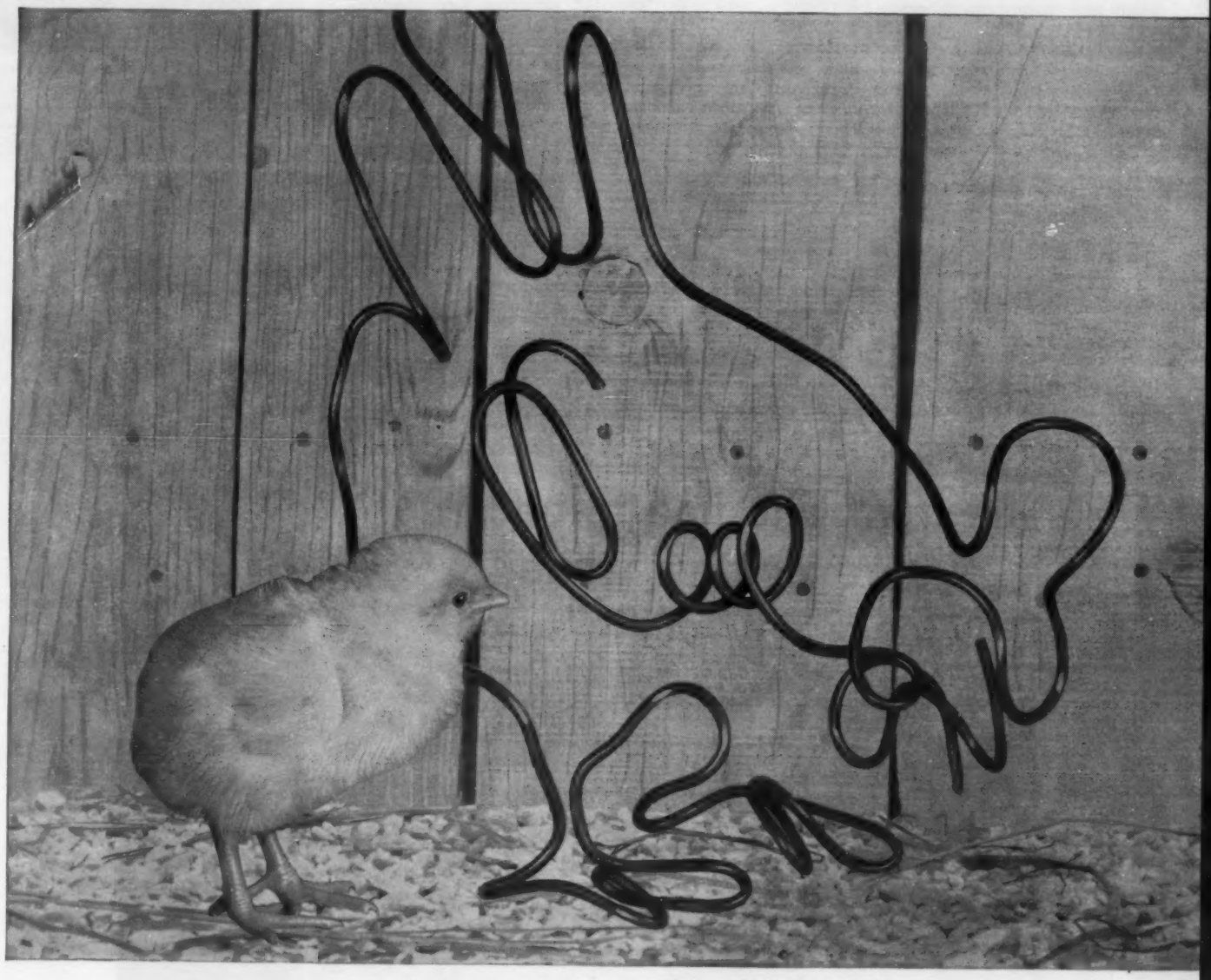
Manner in which we choose the man to accomplish this staggeringly big job has changed almost as much as has the job itself.

Our Constitution originally provided for election of the President by electors from each state, to be chosen "in a manner prescribed by the state legisla-

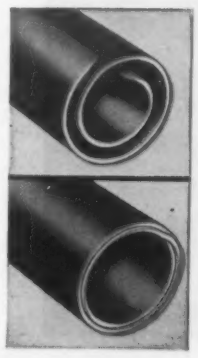
(Continued on next page)



Candid Corner: So you want to lead a band? Seems like that's everyone's ambition, and here's a man who is doing it. Ernest A. Jones, president of the McManus, John, and Adams advertising agency, conducts the Leonard Smith Concert Band at Belle Isle Park, Detroit.



There's almost no limit to the things Bundy can mass-fabricate



Bundyweld is the original tubing double-walled from a single copper-plated *steel* strip, metallurgically bonded through 360° of wall contact for amazing strength, versatility.

Bundyweld is lightweight, uniformly smooth, easily fabricated. It's remarkably resistant to vibration fatigue; has unusually high bursting strength. Sizes up to ½" O.D.

The old adage, "Don't count your chickens before they hatch," is a good one . . . but it rarely applies to Bundy. That's because, no matter how complex your tubing problem, you *can* count on Bundy for the perfect solution.

Bundy engineers and designers are backed by years of experience in the mass-fabrication of steel tubing. And they are available to you at any stage of product development for time- and money-saving suggestions. Their key: Bundyweld®!

Bundyweld steel tubing is double-walled, copper-brazed, leak-proof by test, with beveled edges to provide smooth inside and outside seams. The safety standard of the refrigeration industry, Bundyweld meets ASTM-254 and Gov't. Spec. MIL-T-3520, Type III.

So, when you want to talk tubing, talk to the leader—Bundy! Phone, write, or wire Bundy Tubing Company, Detroit 14, Michigan.

Inside Dope

By GEORGE F. TAUBENECK

(Continued from preceding page)

tures," each of which would select two electors.

Man receiving the highest number of votes would be President; the runner-up Vice President. It didn't take long to prove that this method wouldn't work.

When political parties formed in the 1790's, the two-vote system made it likely that the President would be a member of one party and the Vice President an antagonist from another (as happened in 1796, when Federalist John Adams came in first, and Democrat-Republican Thomas Jefferson second).

Or, the winner and the runner-up might be men who couldn't stand each other personally, even though they were members of the same party (like Thomas Jefferson and his Vice President, Aaron Burr, both elected in 1800).

So, in 1804, the Twelfth Amendment to the Constitution provided for separate balloting for the two offices:

By that time electors from each state were pledged in advance to Presidential candidates already chosen by their parties.

In 1820 most states had established universal (male) suffrage, and provided for popular election of electors—which meant "popular election" of the President.

Thereafter, balloting of the Electoral College became the mere formality it is today.

(An elector can, however, *theoretically* vote for anybody he pleases—and this happened as recently as 1956, when an Alabama elector decided to cast his vote not for Eisenhower or Stevenson, but for a "somebody" [Walter Jones].)

Advice to Sincere Citizens

What can *you* do in a Presidential year to insure Good Government?

1. *Know the candidates and the issues.*
2. *Don't fail to vote.*
3. *Contribute money* to your party or to the campaign committee of the candidate you favor.

Your donation and those of thousands of other private citizens can keep your candidate free from financial obligation to special interest groups.

When you go to the polls this November, you'll be an *employer* who is choosing the best man to administer one of the world's toughest jobs—President of the United States of America, and Principle Statesman of the World.

Take care! Beware! Your opportunity is rare!

Story of the Week

Although Abe Lincoln was a consummate politician, the labors of patronage decisions, and the beseechments of office-seekers, distressed him.

Reporter who found him mournful was alarmed.

"Mr. President! Have we lost a battle?"

"No. It just seems that the postmastership of Pottsville, Pa., is more important than the war."

Rio de Janiero To Be Site of One Fedders Excursion

NEW YORK CITY—Rio de Janiero has been selected as one of the sites for Fedders 1961 dealer incentive program, it was made known by E. M. Becker, national sales manager.

The announcement of the jet-trip was made at the annual sales convention of Fedders wholesale distributors.

Becker stated that there would be at least one more trip location in the 1961 incentive program. He said that as soon as the details were finalized they would be announced.

The Fedders dealers, expected to number about 3,000, will be staying at the Trocadero and Miramar Palace hotels located on the world famous Copacabana Beach. A series of tours and other entertainment have been arranged to provide Fedders dealers with a 10-day South American holiday.

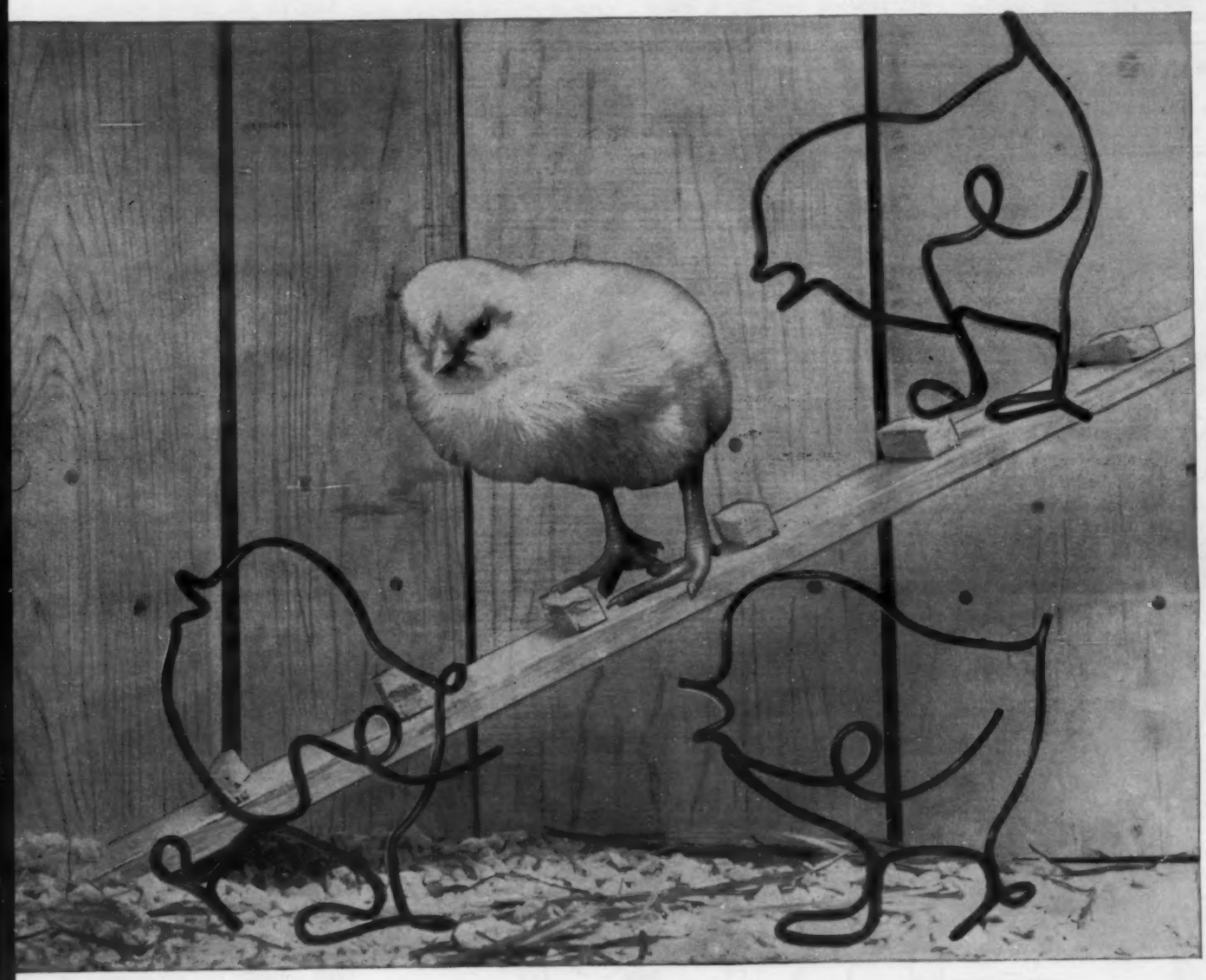
The 1961 trip was announced even before the Fedders dealers began packing for their 1960 vacations which begin Sept. 12. About 5,000 dealers will be taken to one of three trip sites: Israel, Paris, or Fedders Island, Grand Bahamas.

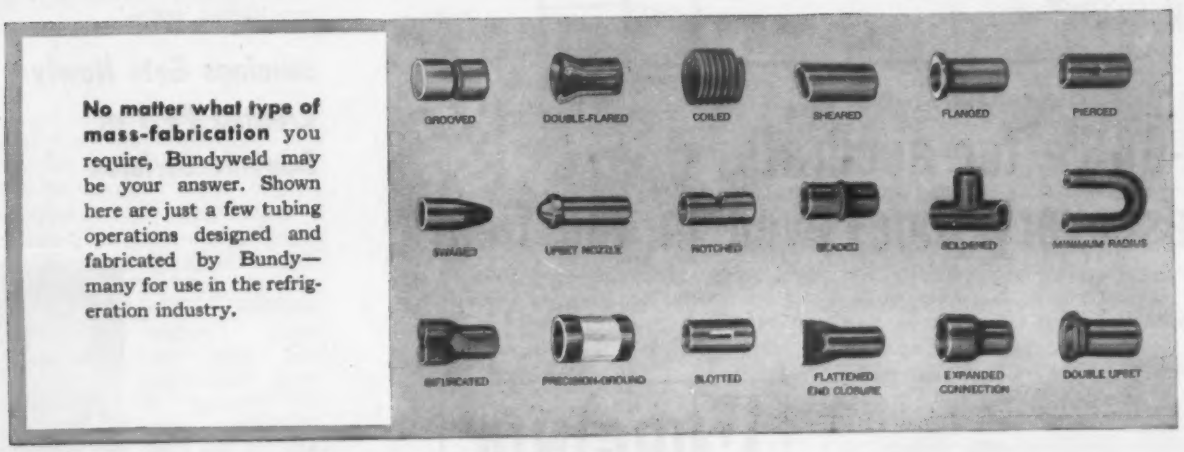
Copeland Names T. W. Phelps

SIDNEY, Ohio — Appointments of T. W. Phelps to assistant chief engineer in charge of Copelametic design and Edwin L. Gannaway to assistant chief engineer of Copelaweld compressor design were announced by E. T. Neubauer, vice president of engineering, Copeland Refrigeration Corp.

Phelps has been associated with Copeland since August, 1958, when he joined the company as a senior development engineer. He formerly was employed by the Trane Co. as a design and development engineer for air conditioning compressors and condensing units up to 100 hp.

Gannaway joined Copeland earlier this year, coming from Bendix-Westinghouse and Tecumseh Products Co.





No matter what type of mass-fabrication you require, Bundyweld may be your answer. Shown here are just a few tubing operations designed and fabricated by Bundy—many for use in the refrigeration industry.

There's no substitute for the original

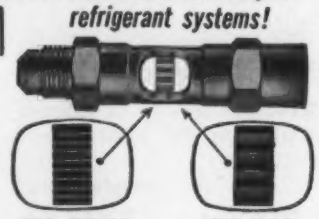
BUNDYWELD® TUBING

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, BRAZIL, ENGLAND, FRANCE, GERMANY, ITALY, JAPAN

BUNDY TUBING COMPANY • DETROIT 14, MICH. • WINCHESTER, KY. • HOMETOWN, PA.

Simplest, most economical way to detect moisture in your refrigerant systems!

Positive Sealing
LIQUID EYE® INDICATOR
featuring the built-in
MOISTURE-REACTOR



IT'S GOOD

The MOISTURE-REACTOR is composed of alternate, permanent and changing (Reactor) color bars. When all the bars appear the same color (green)—it's good—there's no moisture in system.

IT'S BAD

If moisture enters the system, every other color bar changes from green to yellow—then it's bad—the dehydrator should be replaced. When the system is moisture-free again, the Reactor color bars will change back to their original solid green color.

No more guesswork about the condition of your R-12 and R-22 refrigerant systems. No installation problems either.

Now you can get both in the same unit
...LOWEST COST MOISTURE REACTOR PROTECTION PLUS ALL THE PROVED LIQUID EYE FEATURES!

CONTACT YOUR WHOLESALER TODAY

Allin ALLIN MANUFACTURING CO.
410 NORTH HERMITAGE AVE. • CHICAGO 22, ILLINOIS

OVER 1,000,000 LIQUID EYES SOLD TO DATE!

THE MASTER SERVICE MANUALS - - -
— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast
BUSINESS NEWS PUBLISHING CO., DETROIT

Well Water Heat Pump Unit Said To Develop COP of 4.02 under Test Conditions

AURORA, Ill.—A well water 5-hp. heat pump system has developed a coefficient of performance of 4.02 under test conditions set up by Heat Pump Systems, Inc., J. C. Haried of the company has reported.

"Because a heat pump will become competitive to natural gas at 9 cents per therm when it has an operating COP of 3.0, this development very definitely lets us say that this heat pump will produce heat for a space at a cost competitive to any conventional fuel," he said.

Tests were witnessed by G. D. Wetherbee, senior heating engineer for the Commonwealth Edison Co., who took the readings.

Test conditions and data were as follows:

Water in at 47°F, out at 38°.

Air in at 67°, out at 105°.

Water flow at 11.2 gpm.

Suction pressure at 31 psig, discharge pressure 136 psig.

Blower and compressor input 4.85 kw.

Heat pumped, 50,100 Btuh.

Electrical input, 16,600 Btuh.

Heating capacity, 66,700 Btuh.

COP of compressor and blower, 4.02.

The unit tested was a "Climatemaker" heat pump, manufactured by Heat Pump Systems, a division of the Haried Co.

The firm produces well water and solar-earth heat pumps in the 2, 3, and 5-hp. range with larger sizes planned.

Two 3-hp. solar earth heat pumps are being installed at a residence in Northbrook, Ill., which is being used by the University of Illinois and the Commonwealth Edison Co. of Chicago for a series of tests.

Haried said his solar-earth heat pump uses the earth as a heat sink in summer, storing heat for use during winter.

The unit uses two heat collecting and dissipating coils, one in the earth and the other exposed to the air.

In winter, heat is extracted from both earth and air for heating the inside space. In summer excess heat from the inside space is discharged either into the earth or into the air.

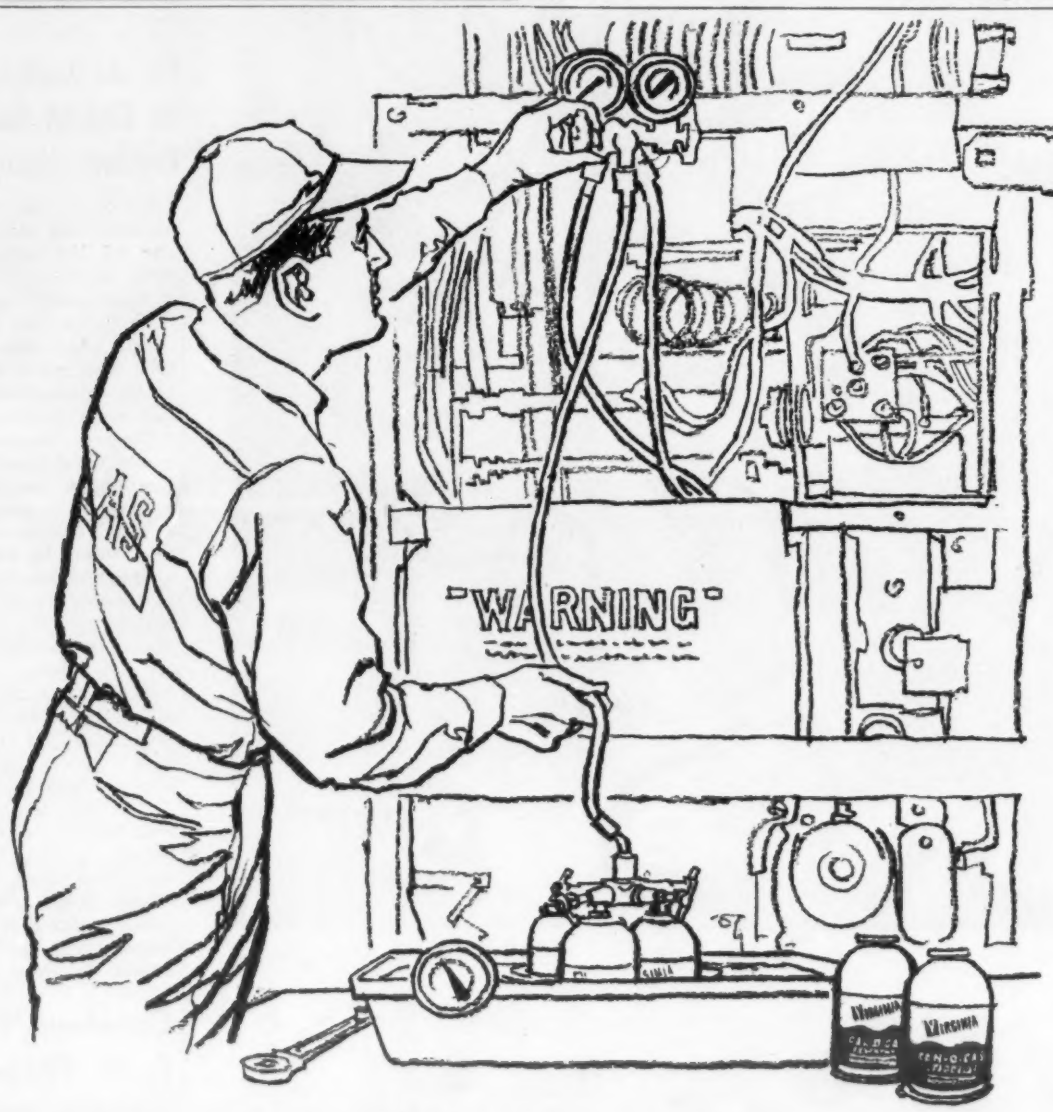
"During the winter season," Haried explained, "the system will extract heat generated by the sun from the warm daytime air. Btu in excess of space requirements are stored in the earth until after sundown when outside air temperatures fall below that of the earth.

"Then the air heat collecting coil is shut off and heat stored during the daytime cycle in the earth is recaptured and transferred to the occupied space."

"During summer, heat removed from the occupied space is rejected from the system into the ground. Temperature of the earth surrounding the ground coil rises from its normal 52° to approximately 100° by the end of the summer.

"Thus at the start of the heating season, there are millions of Btu saved from last summer's heat waiting to be taken back into the conditioned space.

"By March, the earth temperature surrounding the coil has had heat removed from it until its temperature will be approximately 20°. Thus, at the start of the cooling season, the system has an extremely low condensing medium available and actually has saved some of the winter's cold to absorb the excess heat now present in the conditioned space."



Disposable CAN-O-GAS®—for accurate refrigerant charges every time, even in the field

No need to lug along heavy cylinders and controls when you go out on refrigeration service jobs. A few Can-O-Gas units are all you need. No money tied up in cylinder deposits, either—the small, compact Can-O-Gas containers can be thrown away when empty. Refrigerants—"Freons" or sulfur dioxide—are available in a wide variety of preweighed charges. Just combine the charge sizes, using the special "Virginia" opener to dispense the contents of a single can or up to four cans individually or simultaneously. You can add a critical charge, accurate to ±4 grams, with no refrigerant wasted.

Service and maintenance men find that "Virginia" Can-O-Gas makes field jobs easy. Water and beverage coolers, freezer cabinets, and automobile air-conditioning systems can be charged accurately every time. And "Virginia" keeps every unit moisture-free with a special filling technique. Get "Freon-114" and sulfur dioxide in 16-oz. cans; "Freon-12" in 15-oz. cans; "Freon-22" in a 2-lb. size or in the new 16-oz. seamless aluminum can. For full information write Refrigeration Division, VIRGINIA SMELTING COMPANY, 169 Jefferson St., West Norfolk, Va.

VIRGINIA® Chemicals

Esotoo • V-Meth-L • Can-O-Gas • Vascocel • Permagum Presstite Tape • Water Treatment Chemicals Suniso Refrigeration Oils • National Sales Agent & Repacker for Du Pont's "Freon" Refrigerants

Available in Canada and many other countries

Jennings Gets Newly Created Post at Danville Division

DANVILLE, Ill. — Appointment of Lawrence E. Jennings, Jr., to the newly-created post of product manager, Commercial Dept., has been announced by Wesley H. Markson, manager of the Commercial Dept. for the Danville Div. of Bohn Aluminum & Brass Corp.

Jennings, Jr.

Jennings was formerly associated with an industry manufacturer in Michigan City, Ind. He was with this firm for five years.

At 90 International Trade Shows

54 Million People In 28 Countries Have Seen, Experienced Effects of American Refrigeration, Air Conditioning Products

TYPICAL OF EXHIBITS in international trade fairs displaying U.S. air conditioning and refrigeration equipment and applications is this exhibit at the 16th Casablanca Trade Fair, held in May this year. In the picture, U.S. Ambassador to Morocco Charles W. Yost (with glasses), escorts King Hussein of Jordan (in uniform) through the U.S. exhibit here featuring coolers for foods, and food vending machines.

WASHINGTON, D. C.—More than 54 million people in 28 countries throughout the world have seen—and experienced the effects of—American air conditioning and refrigeration during the past five years at exhibits staged by the United States at some 90 international trade shows, the Office of International Trade Fairs reports.

"Whenever and wherever the United States goes to an international trade fair," a spokesman for the Office said, "American air conditioning and refrigeration go along."

In a special report prepared at the request of Air-Conditioning & Refrigeration Institute, O.I.T.F. pointed out:

"Playing it cool in this fashion is absolutely necessary. Uncle Sam has found, if he is to operate an up-to-date, successful trade exhibit. Furthermore, the wonders of modern refrigeration and air conditioning have great impact on peoples of other lands."

"The fairgoer who sees the latest in cooling for food preservation, or feels the breath of freshness in an air conditioned exhibit area gains respect for ingenious America. And this reaction helps build potential markets for United States air conditioning and refrigeration."

Air Conditioning Used To Run TV Studio at Fairs In 3 Countries

Citing some examples of the use and display of air conditioning and refrigeration equipment, O.I.T.F. said:

"To run a full-scale, color TV studio in the official U.S. exhibit at the Osaka, Japan, International Trade Fair last spring, air conditioning was necessary to cool off the studio stage which otherwise would have blistered under the Kleig lights.

"This was also true in Zagreb, Yugoslavia, a year ago, and the need will be repeated in Salonika, Greece, this fall.

"The automatic air-vents installed atop the U.S. pavilion in Poznan, Poland, last June kept the milling crowds comfortable while they viewed the many American displays.

"In Barcelona, Spain, and again in Zagreb, where in recent years the U.S. has set up spectacular supermarkets, all kinds of refrigerated display cases were required for frozen and other perishable foods. . . .

"And the U.S. has shown virtually every imaginable type of refrigeration and air conditioning, short of heavy industry equipment.

"Wherever the U.S. exhibits frozen food and perishable beverages, refrigeration is necessary. The prescription department and luncheon counter at 'Drug Fair,' to be staged in Zagreb this fall will require refrigeration, as did the Rexall Drug Store in Poland last year.

"In the forthcoming U.S. Exhibit in Damascus, Syria, at least a half-dozen well-known U.S. firms will have for sale, home and office-type air conditioners and electric fans.

"In New Delhi, India, at the World Agricultural Fair, the American demonstration of a milk recombining plant required refrigeration. This was also true in Poland, a year ago, where the agricultural part of the show required a cooling tank for the milk.

"In Milan, Italy, where the U.S. staged a show that emphasized 'Testing and Quality Control of Consumer Products,' a half-million Italians saw a U.S. manufacturer subject a refrigerator to considerable abuse by constantly opening and shutting the door.

"Similarly, the refrigerator's sealed-in compressor, enclosed in clear plastic, was subjected to severe tests. Instead of refrigerant, oil was substituted in the refrigeration cycle so that the motion could be seen.

"In Moscow, aside from the usual amount of refrigeration needed at a soda fountain in the U.S. exhibit there last year, the American pavilion contained water coolers, home freezers, and both domestic and commercial air conditioning.

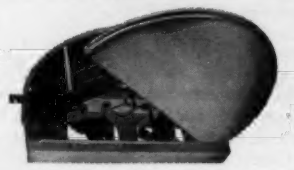
"U.S. firms have sold this equipment almost every place they've exhibited. All of the refrigerated cases used in the supermarkets in Zagreb and Barcelona were sold. Frozen food cases were also sold in Austria. Water coolers were sold in Turkey, Indonesia, and Pakistan.

"In the present national effort to expand the U.S. export program, it is apparent from past experience and performance that air conditioning and refrigeration—industrial or domestic—will continue to play an important role," according to O.I.T.F.

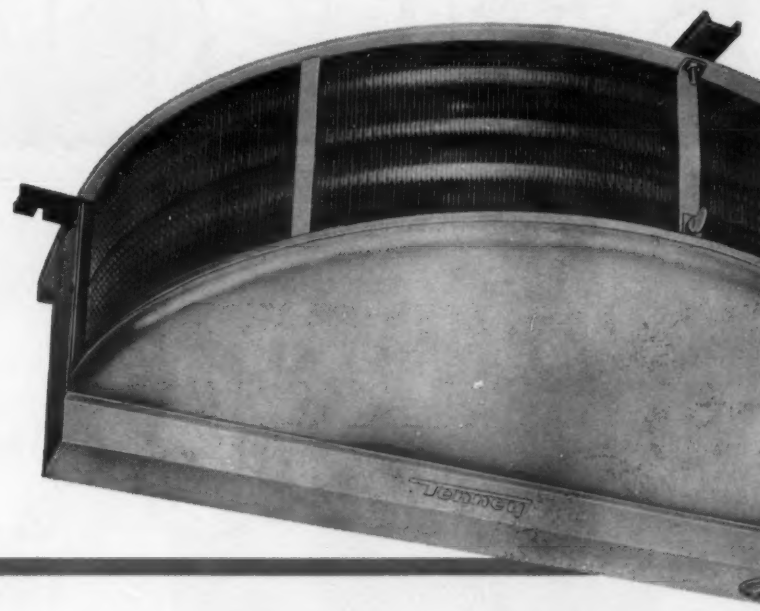
TENNEY

half round...

twin fanned...



easy to service



Tenney TW and TWF unit coolers with ALL-ALUMINUM HOUSINGS!

More cooling power per square inch and most convenient installation with Tenney's TW and TWF unit coolers than with any other comparable units—*and now they're built of lightweight, rustproof aluminum.* True half round design insures maximum air distribution. It hugs up tight against the ceiling and its unique design allows maximum product storage. Service is so simple—flick off a thumb screw and the entire unit is open, with all parts within easy reach. You never disturb existing refrigeration, electrical or water drain lines! And in case of emergency, *one* of the unit's two fan-and-motor combinations can maintain safe temperatures until help arrives. Standard filters are optional on both units. Write for literature and technical data on these new all-aluminum TW and TWF unit coolers today.

Write for Bulletin 104-54

Engineers and Manufacturers of Refrigeration and Environmental Equipment

Tenney ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, NEW JERSEY • PLANTS: UNION, NEW JERSEY AND WILMINGTON, N. CAROLINA

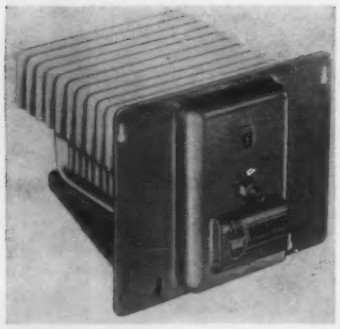


Plate-type Furnace Humidifier Redesigned

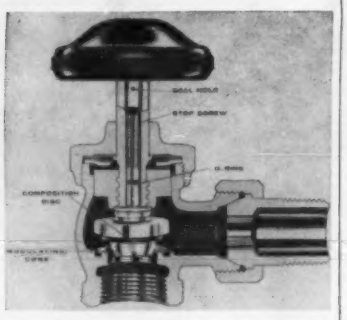
● A newly-designed plate-type furnace humidifier has been announced by Viking Air Products, Dept. AH&RN, 5601 Walworth Ave., Cleveland 2.

Trade named the "Super-6000," this unit comes complete with 10 evaporator plates of break-resistant "Magnasil," all hardware, saddle valve, and 5 ft of copper tubing, it was stated.

"This automatic humidifier incorporates a new easily-adjustable operating principal," the company said. "The lifetime nylon valve has withstood rigid field testing and has been proven to have a positive shut-off action from 0 to 200 lbs water pressure.

"The glass water reservoir has a lifetime guarantee and will resist any kind of water or chemical deterioration. The attractive finish on the cover as well as the pan support is scratch, scuff, and corrosion resistant steel."

The humidifier is factory assembled and shipped ready for installation. Instructions, including a handy, full-size opening template and homeowner's service and guarantee registration are included.



Packless Valves Have Adjustable Orifice

● A new series of packless radiator valves, with adjustable orifice permitting accurate balancing of either steam or hot water systems, has been announced by Marsh Instrument Co., Div. of Colorado Oil & Gas Corp., Dept. AH&RN, Skokie, Ill.

"Any required orifice adjustment is readily made without shutting down the system or disturbing connections by simply removing the screw in the valve handle and inserting a screw driver in the hollow valve stem until it engages the stop-screw," the company said.

"The stop-screw is then adjusted to limit the valve opening to any required rate of flow: on steam, from 10 to 100 sq ft. EDR; on hot water, any flow rate at any pressure.

"Once the desired opening is set, the specially designed taper of the modulating cone assures proper flow of steam or water through the orifice; a straight line flow graph at any given pressure throughout the entire range of valve opening. Since the adjustment merely limits the opening, shut-off is always positive at any setting without disturbing orifice adjustment. After orifice opening is set, adjustment may be sealed tamper proof."

'Supco Aluminum Solder 100' Aids Inexperienced

● Its new "Supco Aluminum Solder 100" will help inexperienced servicemen to make leakproof aluminum joints without any precleaning or removing of any anodization, claims Sealed Unit Parts Co., Inc., Dept. AH&RN, 1178 East 180th St., New York City 60.

"Supco Aluminum Solder 100 has a melting point of about 700° and can be applied as easily as silver solder, phoscopper, or silfos," it was stated.

"The outstanding characteristic of Supco Aluminum is the simplicity of bonding aluminum to copper, stainless steel, brass, steel, nickel, and almost every other metal.

"A new type of flux is another important development. Flux 200 will actually penetrate the anodized coating, clean the aluminum, and prevent oxides from forming at the joint. This is important because porous aluminum evaporators can now be retubed with copper, steel, or any other metal by simply tacking with Supco Aluminum Solder. This work can be done in the shop, or in the field with portable equipment due to the low melting point of the solder."

New Room Thermostats

● A new series of room thermostats, featuring a "sealed-in-glass" magnetic switch that is said to provide dust-free operation and eliminate the need for cleaning contacts during seasonal lighting periods, has been developed by Robertshaw-Fulton's Grayson Controls Div., Dept. AH&RN, Long Beach, Calif.

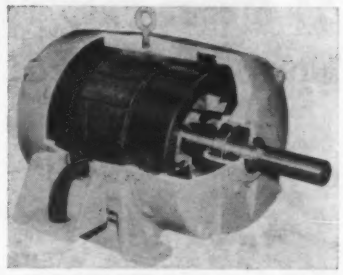
The new line, known as the "RT" series, includes models for heating only, cooling only, or a combination of the two. It is made in both deluxe and economy versions, with a heat anticipator available on all models to insure more even room temperatures. The deluxe lines can be used for all types of heating and cooling.

Encapsulated Motors Resist Elements

● A new line of "Howellsealed" encapsulated motors—3 or 2-phase, 1 through 125 hp a.c. squirrel-cage —has been announced by Howell Electric Motors Co., Dept. AHRN, 16316 West Seven Mile Rd., Detroit 35.

Howellseal, according to the manufacturer, is a specially-developed epoxy compound, applied under vacuum to surround each wire in slots and at coil ends to produce a solid, void-free mass. The announcement said these motors have the simplicity and high overload service features of standard open motors and, at the same time, provide the winding protection of enclosed motors at a 10% to 30% lower cost, depending upon motor size.

Howell stated that this new line provides open-motor performance for applications usually requiring enclosed motors because of exposure to excessive heat, moisture, acids, gases, salts, alkalis, caustics, fine abrasives, shock, as well as vibration.

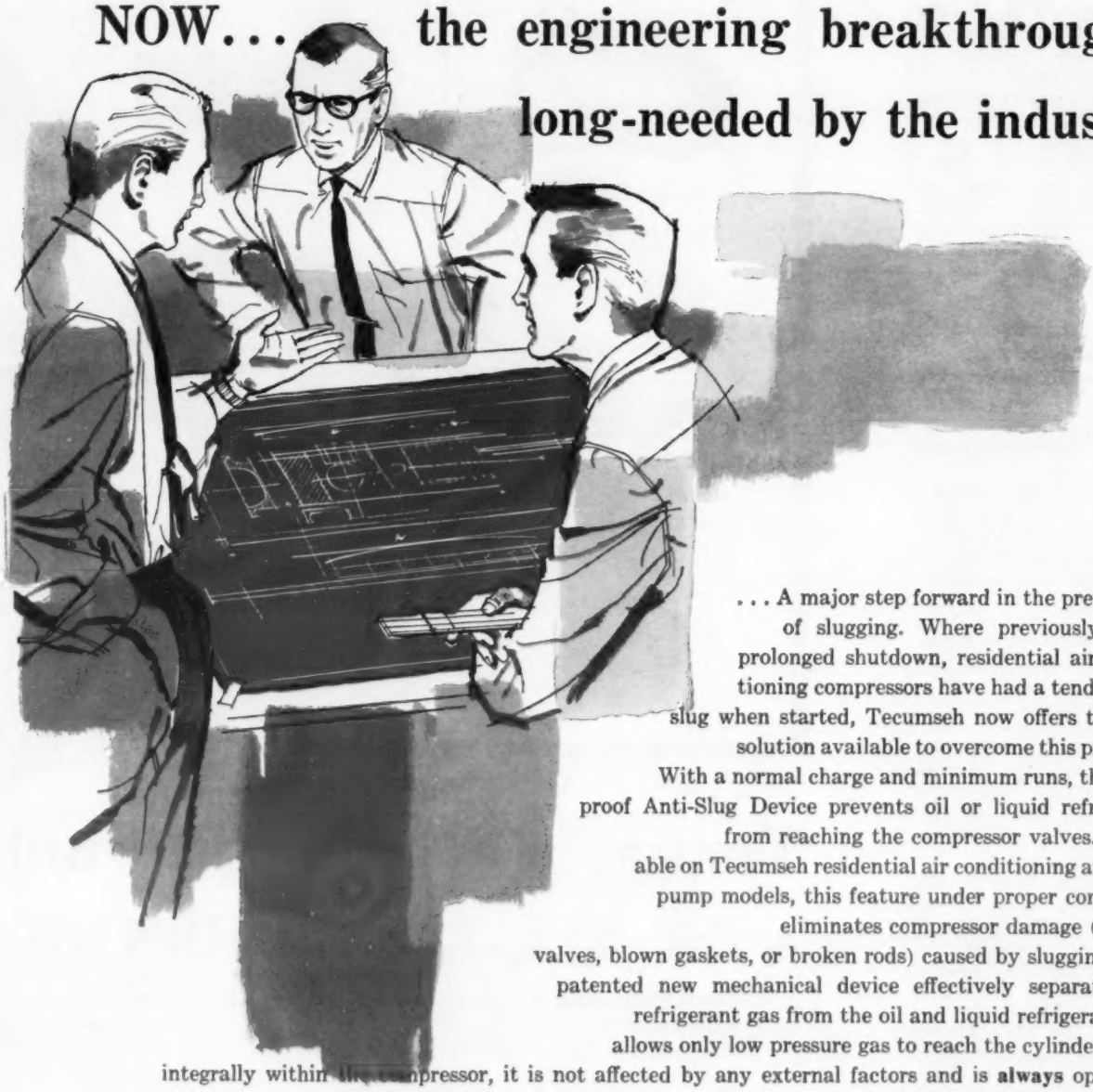


Howellseal motors are available in NEMA designs A, B, C, and D for 1, 2, 3, or 4-speed constant or variable torque operation — all standard voltages and frequencies, according to Howell.

Portable Drafting Kit

● A 14-piece portable drafting kit for engineers, designers, contractors, and others has been announced by Retake, Inc., Dept. AH&RN, P. O. Box 5336, Pasadena 8, Calif.

NOW... the engineering breakthrough long-needed by the industry...

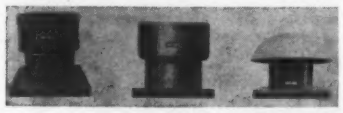


. . . A major step forward in the prevention of slugging. Where previously, after prolonged shutdown, residential air conditioning compressors have had a tendency to slug when started, Tecumseh now offers the best solution available to overcome this problem. With a normal charge and minimum runs, this foolproof Anti-Slug Device prevents oil or liquid refrigerant from reaching the compressor valves. Available on Tecumseh residential air conditioning and heat pump models, this feature under proper conditions eliminates compressor damage (broken valves, blown gaskets, or broken rods) caused by slugging. This patented new mechanical device effectively separates the refrigerant gas from the oil and liquid refrigerant and allows only low pressure gas to reach the cylinder. Built integrally within the compressor, it is not affected by any external factors and is **always** operating when the compressor is running.

A new internal thermostat developed at Tecumseh follows motor temperature with extreme accuracy and removes the compressor from the line at a safe temperature level. The thermostat like the Anti-Slug Device—is unaffected by outside variables and therefore protects the motor to extremely close limits. This is particularly critical in heat pump applications which operate over a wide range of ambients. These features are positive proof that Tecumseh alone offers the industry compressors specifically designed for the residential market.

What's New

Power Roof Vents Have Interchangeable Discharges



● A new line of power roof vents with choice of three interchangeable discharges — standard straight-through, decorative straight-through, and mushroom— has been introduced by L. J. Wing Mfg. Co., Dept. AH&RN, Linden, N. J.

Discharges are painted a special blue for unobtrusiveness against the sky and bases are sand-gray.

Other features include a combination of magnetic damper lock, damper design, and rubber seal which makes the units chatter and leakproof and light tight. Motors are direct connected to fan shaft. Discharge sections are hinge-connected to fan housing.

Ten fan and 12 motor sizes cover a capacity range from 600 to 51,000 c.f.m. Standard construction is steel with aluminum dampers. Aluminum or stainless steel construction is optional.

Bows Sectional Gas Furnaces

● A complete line of sectional gas duct furnaces, introduced by Hastings Air Control, Inc., Dept. AH&RN, Omaha 5, Neb., includes models up to 300,000 B.t.u.h., and can be close-coupled for any total capacity.

Units are available with either aluminized or stainless steel heat exchangers, and may be used on all common gases as well as dual-fuel. All models carry a 10-year across-the-board guarantee on the heat exchanger and draft hood assembly.

Stainless steel condensate shield assembly is available for applications where moisture is likely to form on the inner surfaces of the heat exchanger tubes.

Another accessory for air conditioning installations is a factory built by-pass section with adjustable damper. When the desired air delivery exceeds the capacity of the duct furnaces, one or more by-pass sections may be installed and the dampers adjusted for the proper temperature rise, it is explained.

Line Voltage Thermostat Unaffected by Altitudes

● A line voltage cooling thermostat claimed to be unaffected by altitude and humidity has been developed by C. E. Armstrong Co., Dept. AH&RN, Gladstone, Ore.

It is said to be extremely accurate from 0° to 300°F and is offered in ranges of 50° increments.

"The 'Mono-Gram' cooling thermostat provides remote thermostat control for operating cooling systems in factories, warehouses, in areas of high humidity such as walk-in coolers, florist cases and other areas where precise temperature adjustment is desirable and to prevent equipment such as transformers from overheating," the company said.

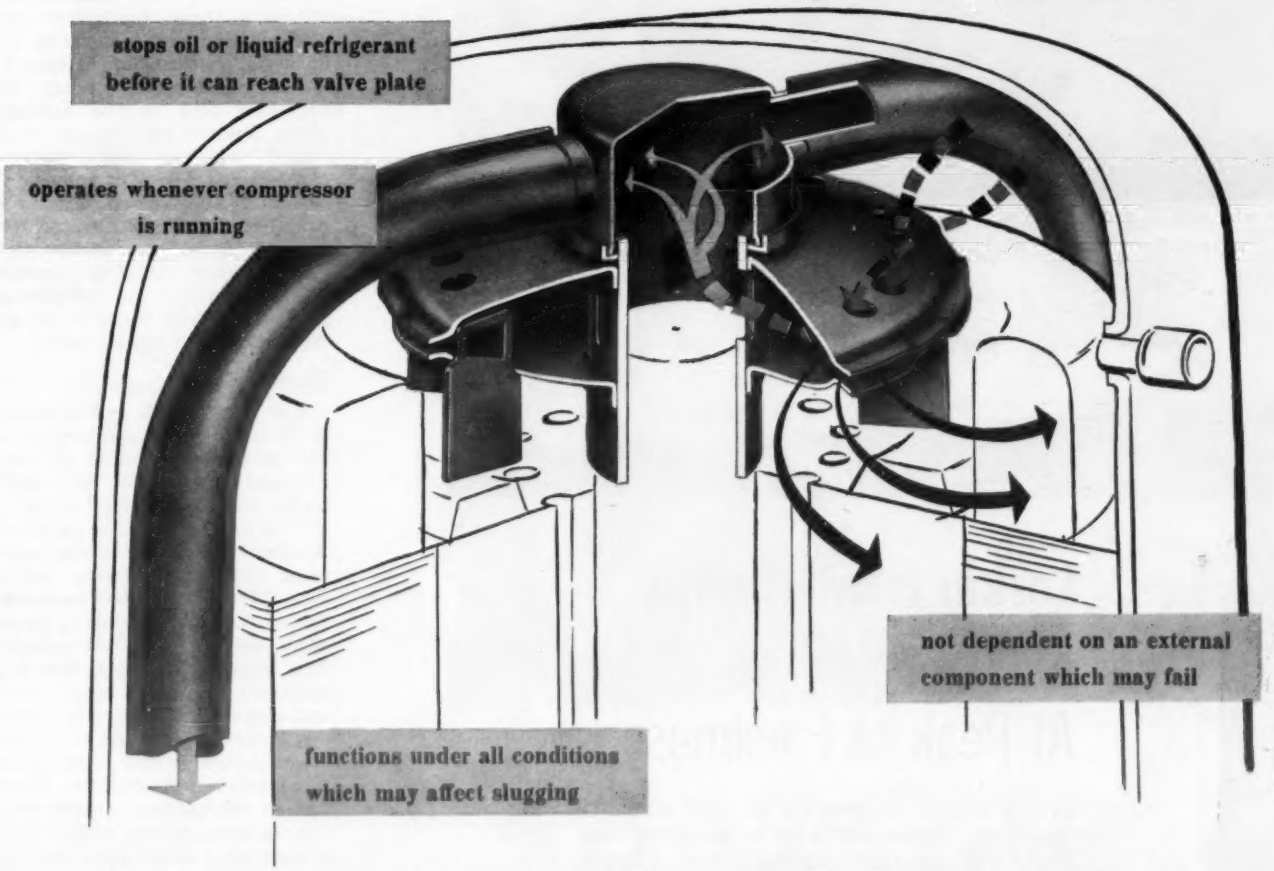
Automatic Pressurized Valve Offered

● A new automatic valve lubricator, designed to provide Rockwell - Nordstrom lubricated plug valves with a continuous and regulated supply of lubricant, has been introduced by Rockwell Mfg. Co., Meter & Valve Div., Dept. AHRN, 400 North Lexington Ave., Pittsburgh 8.

The automatic pressurized lubricator is particularly applicable for remote valve installations where controlled and automatic lubrication is a necessity, it was noted. Since the lubricator is adjustable—it can be set to furnish lubricant only when the valve requires it.

Other advantages cited are: Built-in indicator, increased valve life, and remote control.

TECUMSEH'S exclusive *NEW* ANTI-SLUGGING *FEATURE*


stops oil or liquid refrigerant before it can reach valve plate
operates whenever compressor is running
not dependent on an external component which may fail
functions under all conditions which may affect slugging

The new Tecumseh Anti-Slug Device consists basically of two assemblies. One is the centrifuge which is press-fit on the crankshaft and therefore rotates at the speed of the compressor. The suction of the piston pulls in the refrigerant and oil mixture in the dome through the holes on top. The paddles help in breaking up this mixture and the liquid refrigerant and oil are expelled through the slots by centrifugal force. The gas, being lighter, is drawn through the slots in the hub. The second assembly is merely a collection pan which has two tubes leading to the cylinder heads and the valves. This assembly is stationary and fits over the hub of the centrifuge, directing the gas to the cylinders. With a normal charge, little if any oil or liquid refrigerant reaches the valves, thus greatly minimizing the possibility of slugging. This exclusive feature is one more example of industry progress made possible by Tecumseh engineering advancements.

forty million compressors in the field

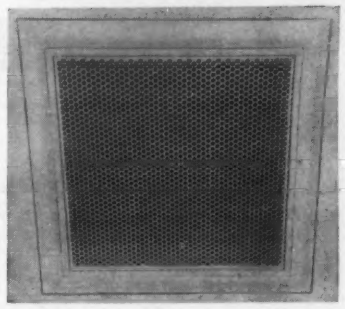
TECUMSEH PRODUCTS COMPANY

MARION, OHIO
TECUMSEH, MICHIGAN

FOREIGN OPERATIONS DIVISION Tecumseh, Michigan

CANADA: Tecumseh Products of Canada, Limited, 1667 Dundas St., London, Ont.

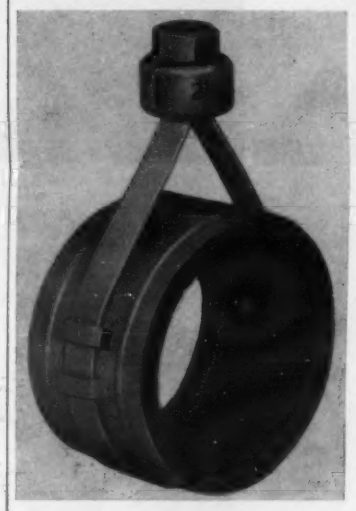
Diffusers Incorporate Perforated Plates



● A new line of supply and return ceiling diffusers that incorporates a perforated plate on the diffuser face to conceal the air diffusion mechanism and blend into acoustical ceiling tile, has been announced by Titus Mfg. Corp., Dept. AH&RN, Waterloo, Iowa.

Called Titus Series TCS (supply) and TCR (return) ceiling diffusers, they are available in square and rectangular models in one-way, two-way, three-way, and four-way air patterns.

Titus Series TCS and TCR diffusers are available in two basic types: one for surface mounting on any type of ceiling; the other for recessed mounting on acoustical tile ceilings. Models for surface mounting are available with curved border or flat border. The models for recessed mounting have a border that snaps into standard tile or can be used with T-bar construction.



Combine Pipe Hanger, Sound Isolator

● A new line of combination pipe hangers and sound isolators is being manufactured by Elcen Metal Products Co., Dept. AH&RN, 9333 King St., Franklin Park, Ill.

The hangers can be used for both standard pipe and copper tubing sizes ranging from ⅜ in. to 6 in. The isolator is factory installed to the hanger to help eliminate the field labor cost with one unit construction.

The isolator is made of a galvanized sheet metal cover, formed with reinforcing ribbing, and a chemically processed high compression felt is permanently attached to this cover. Special stainless or aluminum metal covers can be made where high corrosive and other field conditions exist.

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Factors That Should Be Considered In Installing Food Store Air Conditioning

This discussion was prepared by the chief engineer of a major manufacturer of commercial refrigeration equipment who asked not to be identified so "there would be no question of partisanship in the presentation of these thoughts which I feel are of general import."

Heating a store involves more than just pumping in enough heat to compensate for the outside elements. By the same token, cooling the same store involves more than an air conditioning system simply to compensate for internal and solar heat.

There are quite a few influencing factors that can make a difference in the effectiveness of a heating and cooling plant for a food store, and a full knowledge and understanding of the elements expressed here are essential for the proper planning of an air conditioning system for a modern food store.

The technical factors involved are manifold, and engineering compromises are normally accepted in the modern food store. The compromises have to do primarily with the modern methods of merchandising.

Modern merchandising demands that food items must be displayed with appeal, visibility, and accessibility. This means that merchandising compromises involving perishables have been such as to cause the tops to be removed from refrigerators. Refrigerators for perishables have become not only open top but they also employ open fronts.

Not very long ago an entire food store was refrigerated by not more than a single 3-hp. refrigerator. Today even a small modern food store has at least 15 or 20 hp. An average for a supermarket might be 40 hp. of refrigeration for perishables in the store.

Forgetting about perishable display equipment for a moment, consider the nature of refrigeration. A refrigerator is a simple mechanical device for removing heat from the refrigerated area only to dump it in another area.

Even if a refrigerator is entirely closed, insulated on all six sides, heat is being extracted from the refrigerated enclosure and dumped in the area where the condenser is located. This is a continuing cycle. Heat must continue to be removed from the refrigerated area because of the fact that insulators are only retarders of heat transfer and cannot stop that transfer.

It follows that if this six-sided box has a compressor connected to it and moving 24,000 B.t.u. (2 tons) then that 2 tons of heat is coming from somewhere. That somewhere happens to be the general area in which the box is located. Heat is drawn from the general area to the walls of the box, will gradually seep through the walls and find its way to the cooling coil to be moved to an area where it can be discarded harmlessly.

Hence, the nature of mechanical refrigeration is such as to extract heat from one area and discharge it into another.

Concept Must Be Understood

It is necessary this concept be understood. *Studies have shown that the 25 to 40 hp. of refrigeration in a food store will remove approximately 12 to 20 tons of heat from the sales area of that store.* That means that each hour between 180,000 and 240,000 B.t.u. of heat are being removed from the store, winter and summer. It's true that this heat removal can vary depending upon many factors but for the purposes of this discussion this heat movement can be considered as constant.

Considerable saving in an air conditioning plant can be achieved by recognition of the fact that the refrigeration equipment can be considered an added assist to the air conditioning in the store.

If the air conditioning is figured normally for the sample store described above, then 12 to 20 tons can be removed from the nominal rating of such an air conditioning plant.

Nevertheless, there is a negative side to this discussion. While the heat removal of the refrigeration equipment can be an assist in the summertime, it is something that must be reckoned with in the heating plant. Since it has already been stated that the heat removal can be considered as relatively constant then that heat removal must be compensated for in the heating plant. **Hence, the heating plant must be capable of introducing an additional amount of heat equal to 12 or 20 tons for the sample store.**

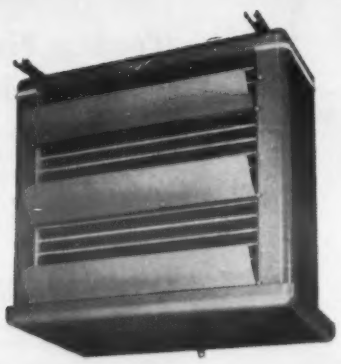
Distribution

An item which unfortunately is frequently overlooked is the proper distribution of conditioned (heated and/or cooled) air in the modern food store.

It is not too difficult for most people in the food store business to remember the early days of the open low temperature refrigerators. During those days self-contained equipment was frequently used. It was not uncommon to find such self-contained equipment in neat rows involving 4, 5, or 6 low temperature self - contained cases in a single line up. These cases where the compressors are located in the sales area, constantly pumped heat into the aisles from the sales area of the cases. This heat was frequently objectionable and it's concentration was difficult to cope with because most frequently it was simply neglected in the conditioning system.

The exact opposite prevails with the neat rows of refrigeration equipment surrounding an aisle. Regardless of the style of refrigerator or its make, its general nature will remain the same. It is equipment manufactured for the extraction of heat. That heat must come from the general area in which those refrigerators are located.

Hence, if the refrigerators along an aisle have 15 hp., then it would be safe to say that on the average the heat removal



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from that aisle would be approximately 3 to 7 tons of heat depending on the temperature range of the refrigerators. It would be the same as putting an air conditioning plant of that capacity along that aisle.

The manufacturer of the refrigeration equipment can in no way control this phenomenon except by reaction that is completely contrary to the demands of modern merchandising. Namely the installation of lids, etc.

It would seem then that if the compromises (generally accepted) that are common for the handling of perishables in the food store are to be coped with, then consideration of these factors must be a part of the conditioning plan for the store.

These factors are becoming increasingly important since better merchandising practices continue to dictate the three basics of merchandising, better visibility, better accessibility, and greater appeal; displays are becoming more and more vertical. More important, they are becoming more and more open and hence there is a need for greater refrigeration effect in order to cool the larger open area.

It is thus that the horsepower in a modern food store continues to mount and that the factors involving heat and distribution of that heat become increasingly important to the operator of a food store for the comfort of his customers.

Radiant Heat

So far it has been easy to understand the two basic factors that must be considered for the proper conditioning of the sales area of a food store. There is yet another factor that comes into play and which can have as large a bearing on comfort as the first two.

Unfortunately it is the least controllable of the items and hence must be understood so that it can be coped with. That factor involves radiant heat.

Briefly, your hand, when held near a cake of ice, feels cool immediately because it radiates heat to the ice. In the same way, your body loses heat to cold walls, even though the air may be warm.

Conversely, with walls and floors warmed, radiant heat loss from your body is not a problem. In summer, very hot walls may radiate heat into a room long after peak ambient temperatures have passed.

Now, vertical display refrigerators are essentially cold walls in which perishable merchandise is displayed. These cold walls have the same effect as the block of ice used in the example.

There are a few ways in which this can be handled. Concentration of vertical refrigerators should be avoided. Thus, it would seem ill advised to locate vertical type of refrigerators surrounding an aisle. Putting such refrigerators along one side an aisle would minimize the effect of heat removal from an individual.

Secondly the planning of the heating in a store (distribution) should be done in such a fashion as to apply the heat where it is most needed.

Zauner Appointed Service Manager For Ross-Temp

CHICAGO — Appointment of Joseph A. Zauner as national service manager of Ross-Temp, Inc., manufacturer of automatic flaked ice machines, has been announced by John H. Seippel, sales manager.

Zauner will headquarter at the home office and factory at 1805 S. 55th Ave., Chicago 50, Ill.

He will be responsible for service policy to 14 regional sales managers throughout the United States. Zauner also has approximately 400 Ross-Temp dealers under his jurisdiction.

Zauner was formerly associated with Fedders Corp. and, before that, with Westinghouse Electric Corp., according to the announcement.

West Virginian Honored As 'Best All-Round Warren Distributor'

ATLANTA—The Warren Co., Inc. announced that it has established an annual award for the "Best All-Round Warren Distributor," effective with distributors' performances during 1959.

At the same time, the company announced that J. Wesley Rice, its distributor in Martinsburg, W. Va., has been presented a plaque as the first winner of the award.

The company said the annual award "will be the highest honor that can be paid any Warren distributor." Analysis for the selection "will be exhaustive from all points of view in connection with distributors' full relationship with The Warren Co."

Regarding the selection of Rice as the "Best All-Round Warren Distributor" for 1959, the company noted that last year, he was the No. 3 "Star Quota Buster," producing an especially high percentage of his yearly quota.

"His sales transactions," it was pointed out, "represented a broad cross section of models in the Warren line, serving the largest and smallest stores. He maintains a consistent and broad advertising program. His record with our credit department is excellent.

"He was a member of the 'Top-Ten-Club,' the group of distributors producing the highest volume of business. A good representative display of Warren equipment is maintained in his showroom, which itself is kept in attractive and clean appearance always.

"Special merit is given to the volume and percentage of quota produced in a territory containing no large cities. In addition, he was a 1959 contest winner for his district."

Collection Period Stretching Out

PHILADELPHIA — Average collection period during 1959 for members of the National Commercial Refrigerator Association was 47.38 days, nearly seven days longer than in 1958 and 14 days longer than in 1957, Marie Lawton, executive secretary, reports.

"As this is an indication that capital is tied up where it is not making money for you, it may be that greater attention could be given to improve this situation," she warned.

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The seal is made in such a way that it does not change the diameter of the tube. This makes it possible to pass the tube through any opening large enough for the tube itself. Economical tube sizes range from ⅛″ to ¾″ O. D.

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Shows Slight Edge over Near-by Resistance Heat Job

Northern Michigan Heat Pump Installation Provides Operating Cost Data for Winter

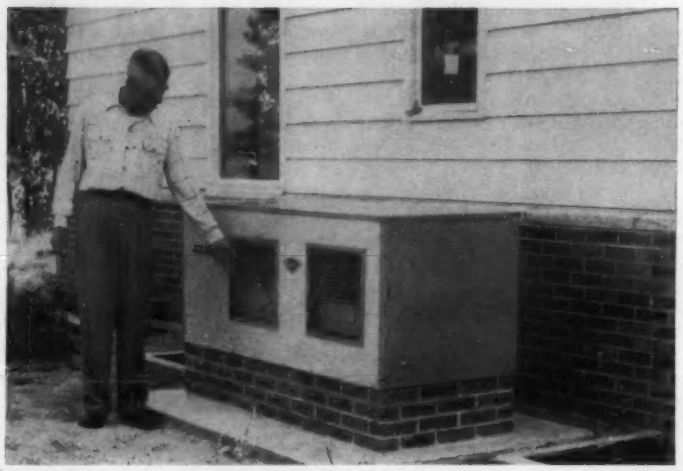
By C. Dale Mericle

TRAVERSE CITY, Mich. — Results of the first winter's operation of a residential heat pump here, the only such packaged unit in the area, show a minimum of service, satisfactory heating, comparatively low operating cost, and one minor, but unexpected problem — disposal of defrost water during freezing weather.

Close watch of this installation has been maintained by Dallas Alsup, farm service advisor for Consumer Power Co.'s Northern Div. with headquarters here, who recently disclosed at a company meeting operating costs and other data on this job along with figures for a somewhat similar home heated electrically by straight resistance.

The heat pump installation was described in detail in the Sept. 21, 1959, special Heat Pump issue of the NEWS, in an article that also outlined the thinking behind various decisions in the design.

Equipment employed was a G-E Weathertron split type air-to-air heat pump rated at 4 tons for cooling and 90,000 B.t.u. for heating (including three supplemental 6.9 kw. resistance elements).



FIRST winter's experience with heat pump in Northern Michigan was found generally satisfactory by owner Walter Johnson, but he had to provide insulated drain and dry well to prevent freezing of condensate after defrost cycle during outdoor temperatures below 32°F.

House Kept Under Positive Pressure

A certain amount of outdoor air is piped in through a duct connected to the electrostatic air cleaner and indoor section of the heat pump. This keeps the house under positive pressure to minimize infiltration of untreated outside air.

The house, a new one built for Mr. and Mrs. Walter Johnson, is located about 15 miles north of Traverse City on Old Mission Peninsula on the shore of Grand Traverse Bay. It's a single-story ranch house with full basement having approximately 2,000 sq. ft. on the first floor. Double-glazed throughout, the house has 6 in. of insulation in the ceiling and 4 in. in the walls. There is no insulation on the basement walls.

Heat Loss Calculated At 56,100 B.t.u.h. For First Floor

Heat loss was calculated at 56,100 B.t.u.h. for the first floor, using -10° F. outside and 75° F. inside as winter design conditions. Basement heat loss is a lesser amount.

These calculations were made by the designer of the system, Joseph Sloane, who operates Sloane Heating & Air Conditioning, a G-E dealership in Lansing, Mich.

In his "progress report" to other utility employes, Alsup explained: "heat losses were calculated as 13,728 watts in the living area, not counting any loss to the floor, and 16,091 watts in the basement. . . . After the basement is properly insulated, heat loss in the basement will be 7,479 watts."

For its study of the installation Consumers Power installed special meters, including separate recording demand and kilowatt-hour meters on the heat pump system itself. Outdoor temperatures also were recorded at a location less than three miles from the house.

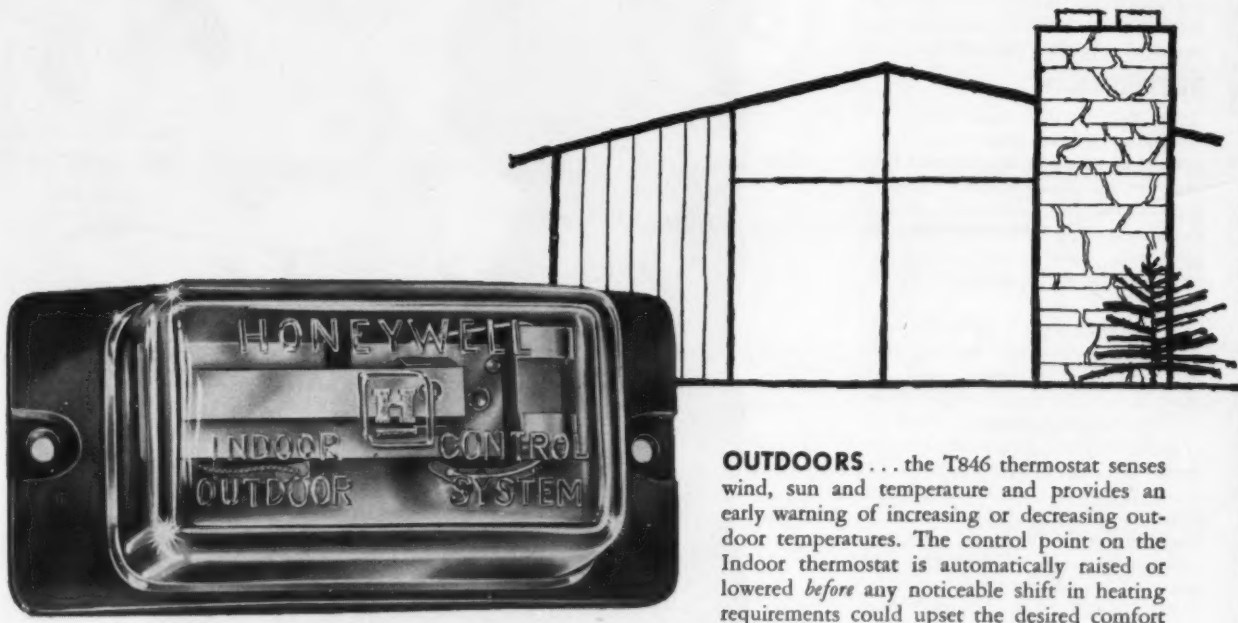
Incidentally, the bulb of this recording thermometer is exposed to sun and wind. Thus, it is subjected to the same weather conditions as the Johnson house, unlike Weather Bureau official temperature readings.

Total power consumed for heating from Dec. 1 through May 31, 1960, was 14,480 kwhr., according to Alsup. This figure includes about 3 kwhr. used for cooling on May 31 when the heat pump automatically switched over to cooling in the afternoon. It should be noted, too, that the total includes current for a "slightly overloaded" ½-hp. blower motor and an electrostatic air cleaner requiring about 60 watts.

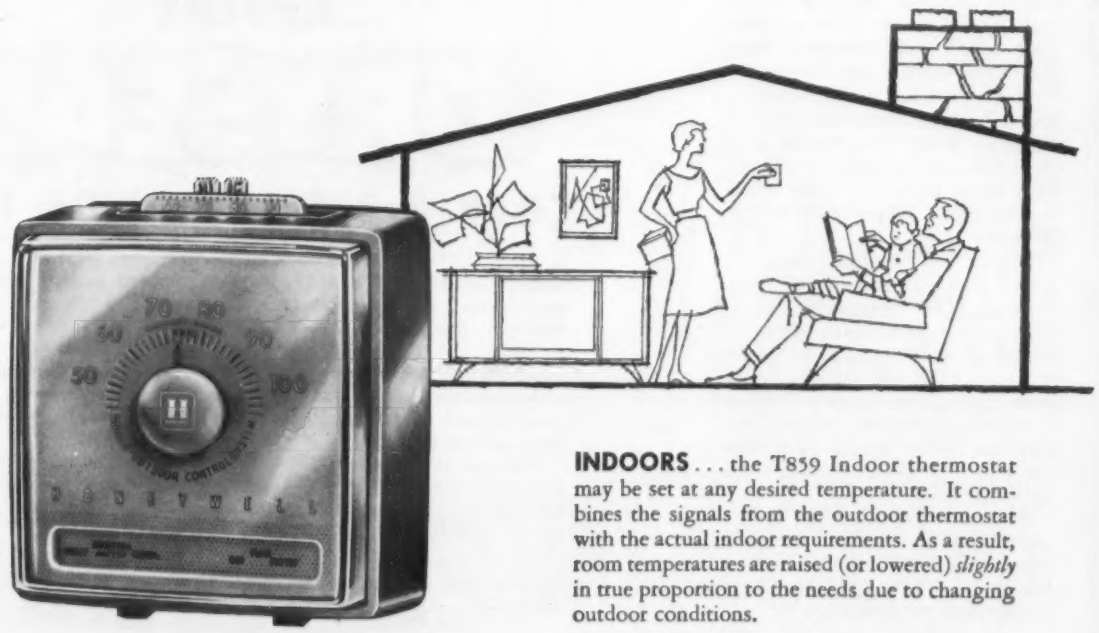
At a charge of 2 cents per kwhr., this meant that the Johnsons had a heating bill of $289.60 for the six-month period, or an average of $48.40 per month. This is somewhat less than had been predicted, and it was also less than the cost of heating with straight resistance baseboard units another house that is similar though slightly smaller and better insulated. More details of the latter house will be described later.

(Although the house had been occupied by the Johnson family since early last fall, it was not until the first part of November that the recording

Now a heat pump that will not shift



OUTDOORS . . . the T846 thermostat senses wind, sun and temperature and provides an early warning of increasing or decreasing outdoor temperatures. The control point on the Indoor thermostat is automatically raised or lowered *before* any noticeable shift in heating requirements could upset the desired comfort balance of indoor temperature.



INDOORS . . . the T859 Indoor thermostat may be set at any desired temperature. It combines the signals from the outdoor thermostat with the actual indoor requirements. As a result, room temperatures are raised (or lowered) *slightly* in true proportion to the needs due to changing outdoor conditions.

meters were available for installation. As a result, the first full month records of current consumption began with December.)

On the basis of the actual power consumption since Dec. 1, 1959, and records indicating that 24% of the past heating season's degree days occurred before Dec. 1, Alsup has calculated that the total heat use would have been 19,306 kwhr. for 7,760 degree days.

This came as something of a surprise, for it had been estimated in advance that the heat loss from the first floor alone would be 21,375 kwhr. for 7,500 degree days.

"The uninsulated basement makes accurate heat loss calculations difficult," Alsup points out, "but we estimate that with resistance heat 25,000 kwhr. would have been necessary. A saving of at least one-fifth in power is thus anticipated from the heat pump."

Electric Resistance Heated Home Study Results Described

For purposes of comparison Alsup described results of a study of another home in the Traverse City area which is heated with 15 kw. of baseboard resistance elements controlled by separate thermostats in each room. This house is likewise a ranch style dwelling with 1,650 sq. ft. of heated area on the first floor and a full basement which is partially heated. It is insulated with 8 in. in the ceiling, 4 in. for the walls, and 2 in. below the floor.

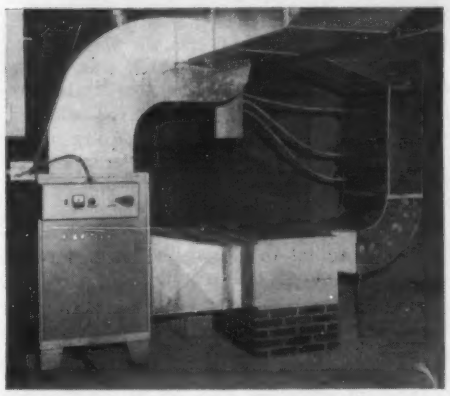
Family makeup is the same in both this and the Johnson home — two young adults and three children.

A recording demand meter was also installed on the second home's heating system. Alsup, incidentally, is compiling careful and complete records of operating costs of electrically heated homes and other establishments in the territory he covers, not only for the utility's information but as a sales tool as well.

Heating Costs Compared In Northern Michigan

Month	Heat Pump (Kwhr.)	Resist. Heat (Kwhr.)
Dec.	2,720	3,081
Jan.	3,280	3,650
Feb.	2,880	3,027
March	2,840	2,943
April	1,640	1,972
May	1,120	966

Heat use at this house for six months (December through May) totaled 15,639 kwhr., compared with the 14,480 kwhr. at the larger house with less insulation served by the heat pump. Recorded heat use for eight months (October through May) was 19,937 kwhr. compared with the calculated 19,306 kwhr. for the heat pump house.



CHIEF indoor components of this heat pump installation include electrostatic air cleaner, blower-coil section of split system, and three 6.9 kw resistance heaters in discharge plenum.

A month-by-month comparison of power consumption for heating only in the two houses is given in an accompanying table.

Although the heat pump system chalked up a favorable record of operating costs, the installation was, of course, more expensive than that of the straight resistance job, but it also provided summer cooling, among other things.

In discussing this aspect with his colleagues, Alsup commented: "The equipment is automatic and elaborate, and the cost of installing it is substantial. Since there is a good deal of movement, maintenance must be considered a problem, compared with standard resistance heat. But the system does much more, and its benefits must be considered against its cost."

Service on Heat Pump Was Minimal

Service on the Johnsons' heat pump during the first winter was minimal. There was only one mechanical failure—in an outdoor thermostat.

There are three such on this system which function basically as follows: When the outdoor temperature drops below 40° F., one thermostat makes available the first step (6.9 kw.) of supplementary resistance heat; at 20° another thermostat cuts in the second 6.9 kw. of resistance heating; at 12° a third thermostat cuts in the third step, which is likewise 6.9 kw.

Actual operation of the heat pump and the resistance elements is controlled by a thermostat in the conditioned space. The outdoor thermostats merely throw the heating elements in or out of the circuit controlled by the room thermostat.

Trouble in this instance was a faulty thermostat that not only threw a resistance element into the circuit but simultaneously put the heat pump into a defrost cycle whether defrosting of the outdoor coil was required or not. A replacement thermostat solved this problem.

Heat Pump Did Job Well Down to 20°

In this connection a comment of Alsup is quite interesting: "We have been surprised at the ability of the heat pump to handle the heating load at moderately low temperatures. The recording meter shows that the heat pump did all the work very well down to about 20°."

Snow Storms Create Operating Problem

More details on this aspect are offered by the user, Walter Johnson, a successful fruit farmer who holds a degree in mechanical engineering from Northwestern university.

"I've been disappointed by one thing, but perhaps it's the nature of the animal," Johnson says. "The heat pump is very inefficient during snowstorms [which are frequent in this area]. It goes into defrost

(Continued on next page)

control system
its control point!

New Honeywell Indoor-Outdoor Control System resets itself to compensate for changes in outdoor temperature . . . assures comfort never before possible with two-stage heating!

Here is the ultimate in indoor-outdoor environment control. A completely automatic control system. No uncomfortable periods because of a lag in the control system. This Honeywell combination of the T846 and T859 eliminates the shift in control point and the need for manual change of thermostat settings, reducing auxiliary resistance heating requirements. It also saves on operating costs for the homeowner.

Since this new Honeywell Indoor-Outdoor Control System requires only 24 volts, complex wiring is not necessary. Installation is quick and easy. The handsome styling of the T859 was designed to match any decor and adds to the consumer appeal.

Select from 5 different models of the most popular multi-stage heating-cooling thermostat on the market!

The T859 adds outdoor compensation to all of the features of the most widely accepted multi-stage heating-cooling thermostat—the T870. Some of the most important are: (a) Separate thermostat and system-switching subbase to provide maximum flexibility with minimum inventory investment (b) Mercury switch contacts for each stage of heating and cooling (c) Adjustable heat anticipation (d) Universal cooling anticipation for range 0 to 1.2 amps (e) Close accurate temperature control with outdoor reset to compensate for interstage differential—provides straight line temperature control.

Models available are listed below.

T859A Single stage heating, single stage cooling
T859B Two-stage cooling, one-stage heating
T859C Two-stage heating, one-stage cooling
T859D Two-stage heating, two-stage cooling
T859E Two-stage heating only

For additional information and price lists, write to: Minneapolis-Honeywell, Dept. AN-9-148, Minneapolis 8, Minnesota.

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First in Control
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Heat Pump Costs--

(Continued from preceding page)

cycles frequently, at least once an hour. During dry periods the heat pump does okay down to about 12° outdoor temperature, but in a heavy snowfall the heat pump is efficient only down to about 25°," he's observed.

"Also, we usually have to raise the room thermostat setting about 1° or 2° above the usual 72-73° setting during a snowstorm," Johnson adds.

This doesn't mean, Johnson explains, that he's dissatisfied with the heat pump or that the house is uncomfortable during a snowstorm, but he wishes the resistance elements wouldn't operate so much under these circumstances.

The defrost cycle was also involved in a basic design problem that wasn't anticipated.

"During the winter a small amount of trouble was caused by the water which was melted from the evaporator coils during defrost," Alsup explained.

"It froze in the vicinity of the evaporator and was quite a nuisance. Finally, Johnson dug a small 'dry well' near the unit and ran the water off to this well in an insulated pipe. This cured the trouble," Alsup said.

Another observation of this system which should be of general interest involves the fireplace and what happened the night of Dec. 23-24. Alsup describes the events:

"The Johnsons opened their fireplace and started a fire at about 8:45 p.m. Kwhr. use per hour went up from about 3 to 11 to start with, for about 45 minutes, then reduced to ½ for 45 minutes, increased to 5 until about 2:30 a.m., when it went up to 11 again. At 10 a.m. (the next morning) the fire had gone out, the fireplace was closed, and use returned to 3 kwhr.

"All this took place while the temperature outside was between 20° and 28°," Alsup continued. "Opening the fireplace increased kwhr. use from a rate of 72 a day to 264 a day. This, of course, is a house which is under pressure, with a forced draft up the [fireplace] chimney, but it gives us an indication of the heating, and heat-losing value, of a fireplace."

Alsup also went on to explain to his fellow workers: "We plan to continue the study of this installation throughout the summer, and into next winter, too, if we get the basement insulated. We are particularly curious to see how often the unit both heats and cools in the same 24 hours. We also want to see how much cooling is actually needed in this climate."

Shreveport Silver Shield Plan Gets Underway With 60 In Training Class

JAMES D. NOLAN of the National Warm Air Heating & Air Conditioning Association on the left (standing) congratulates Tom Harper, new president of the Shreveport, La. Indoor Comfort Bureau during the presentation meeting. Harper on behalf of the group expressed the full and complete desire by the dealer-contractors to proceed with the Silver Shield Program. Currently the group is conducting the 12-week technical training program with some 60 enrollees.

REMEMBER . . .

. . . the bite of the ice pick splitting a block of ice . . . the clank of tongs . . . the heave of the ice cake to the iceman's soaking shoulder apron? Remember his dripping trail up the walk, across the porch and kitchen to the icebox? What an appetite it had for cakes of ice . . . remember? And "mop up those tracks . . . don't forget to empty the drip pan!"

While the iceman made his rounds years ago, scientists worked to perfect a safe refrigerant. In 1931 development of "Freon" refrigerant opened the door to progress that has put safe, efficient, carefree refrigeration into nearly every home in the country. Today, "Freon" stands first for quality and leadership in serving the refrigeration and air conditioning industries.

Just as "Freon" is the refrigerant you know and trust, you can be sure Du Pont will continue research and development of its products and packaging. Always look for new developments from Du Pont. E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division, Wilmington 98, Delaware.

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Magee To Direct Public Relations For Fedders

MASPETH, N. Y.—Frederick J. Magee has been appointed director of public relations for the Fedders Corp., it was announced here by U. V. Muscio, executive vice president.

F. J. Magee

He succeeds Jerry Lansky who has been named district sales manager in the firm's Pacific sales region.

Magee will be responsible for the public relations activities for all Fedders divisions including the Heating Div., with headquarters in Trenton; room and central air conditioning, Maspeth and Newark; and the Automotive Div., Buffalo. He will be located at the executive offices in Maspeth.

Upon graduating from Fordham university, School of Business, in 1952, Magee joined the General Electric Co. and completed their marketing training program before assignment to the Air Conditioning Div. in Bloomfield, N. J.

$55,000 Cameo Home To Get Conditioning, 2 Gas-Fired Furnaces

PORTLAND, Ore. — An air conditioning system, two gas-fired furnaces to provide zoned forced-air heating, and a heated swimming pool are among features of the $55,000 Cameo home displayed in Wilcox Estates.

The English country-style house contains 2,700 sq. ft. on one floor, has three bedrooms, three baths, and walnut-walled den, plus AM-FM intercommunication system, built-in vacuum cleaner system, and radio-controlled garage doors.

REPRINTS SELLING FOR PROFIT.

By Frank Klein—Only $1.00 ea. Clip this ad and mail with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

Contractor Says:

Careful Analysis of Existing Ductwork Essential for Good 'Add-On' Cooling

By C. Dale Mericle

DAYTON — What he enjoys most, chiefly because they're a "real challenge," are large commercial and industrial air conditioning jobs, but veteran contractor Larry Warner here also finds some challenge and considerable profit in the residential field.

Averaging 50 residential installations a year, nearly all of which are "add-on" jobs going into the better type homes, Warner makes about 35% gross profit on each one.

"We mark up everything," he explains, and if Warner learns that other contractors are "bidding" on a certain residential job, he drops it.

"Our bid will be high, so there's no use wasting our time on such a job," he says.

Even when Warner is the only contractor involved, "If I can't sell the prospect the first time I try, I forget about it," Warner points out. "Otherwise, I'd just be wasting time that I could put to better and more profitable use."

While at first thought this might appear to be something of a "suede shoe" approach to selling, actually quite the reverse is true, Warner indicates. A long-time Carrier dealer, Warner has been thoroughly schooled to estimate, engineer, and install carefully.

Survey Takes Two Or Three Hours

When he calls on a prospect for residential air conditioning he first devotes two or three hours to making a survey, using the standard Carrier survey form. Then he goes back to the office (although sometimes he'll do it at home) to make a ⅛-in. scale drawing of the house, laying out the system and noting changes to be made in existing ductwork, etc.

Sizing ducts by the equal friction method, Warner notes on the layout such things as the c.f.m. required at each register, etc. For larger homes this layout is usually produced on the drawing board, but for smaller homes a detailed hand sketch will usually suffice.

On the basis of the survey and layout, Warner prices the job, and then he returns to the prospect to attempt the sale. If the sale is made, and many of them are, the detailed drawings or sketches are then used as working drawings by the installation crew and for balancing the system when it's completed.

Most of these residential installations, according to Warner, go into the more expensive homes, and many of his customers are professional people.

Because he operates a union shop for his commercial and industrial installations, and the union wage rates would be prohibitive for residential jobs, Warner sublets the ductwork for the latter to a sheet metal contractor whom he has "educated" through the years to make installations the way Warner thinks they should be done.

In general, Warner finds the existing ductwork for heating seldom is completely satisfactory for cooling and often not as good as it might be even for heating. Most residential sheet metal men, according to Warner, seem to want to run the ducts between the floor joists, which is fine for the sake of appearance and is okay otherwise unless the duct has to make a turn to reach a register or a riser. Then, of course, the duct must be brought down below the joists, which involves additional elbows.

"On a job recently," Warner recalls, "I found one run with so many twists and turns that it was the equivalent of 185 ft. of straight duct, though, of course, it hadn't been sized for that length.

Some of the shortcomings in existing ductwork that he watches for when surveying a prospective "add-on" cooling system are square turns without proper turning vanes and branch take-offs without suitable splitters, he says.

Occasionally the entire ductwork has to be reworked, but almost always the blower motor horsepower has to be increased for air conditioning, Warner finds.

"And on about one job in 10 we have to change the blower also," he says.

Balancing of a system after it has been revamped for air conditioning is just as important as the remodeling work itself, Warner emphasizes, and this can be done both quickly and carefully with the right instruments. Warner has about $1,000 invested in such instruments as velometers, anemometers, Anemotherms, and U-tubes.

In addition, Warner has redesigned a special box originally developed by Carrier to check air delivery from outlets so it can be used to determine velometer readings on any kind of an air outlet.

Besides being used to balance a system to the c.f.m. requirements as first calculated by Warner, these instruments are extremely helpful in diagnosing troubles.

Being extremely particular about moving air in sufficient quantities without causing drafts, Warner admits to being somewhat "griped" over the fact that "there's no satisfactory side wall outlet for replacement work."

Trouble is, according to Warner, conventional wall construction does not give a side wall register enough depth to permit effective air vanes.

"Vanes only ¼ in. deep aren't 'thick' enough to turn air," he claims.

Since it doesn't seem likely there'll be any change in the common practice of using "2 by 4's" for studs in inside walls, Warner would like to see an educational drive to persuade consumers to accept a wall register that would extend out from the wall slightly.

"This would permit the additional depth needed, and the vanes could be as much as ½ in. 'thick' and really turn the air as needed," Warner believes.

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2. ¼-INCH THICKNESS
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Why pay more when you can buy the handy 16 foot roll of ¼" thick NoDrip Tape at less than half the cost of a roll of ordinary ⅛" wrapping . . . and *far* below the cost of pre-formed foam cellular insulations?

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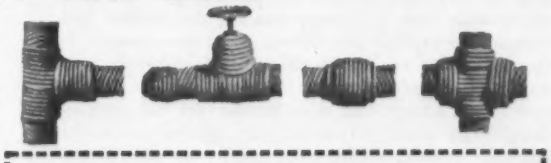

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TECH CENTER

by Frank J. Versagi, Technical Editor

Absorption Refrigeration and Air Conditioning—Discussion of Basic Differences In Systems

Recent discussions of gas air conditioning units of the absorption type have led several readers to ask about the difference between the absorption system used in a refrigerator and that in an air conditioner. Specifically, many wonder why an ammonia-water system such as employed by Whirlpool in its refrigerator may not be applied to air conditioners in the same way that Bryant Mfg. Co., for example, applies an ammonia-water absorption cycle.

Simplifying, it can be said that the essential difference between the two systems is that one is a two-pressure system and the other is a single-pressure system. The Bryant unit has, in effect, a high side and a low side; a pressure differential exists between the evaporator and the condenser sections of the assembly, and this pressure difference aids gravity in moving the working solutions from place to place in the unit.

A refrigerator, such as Whirlpool's, makes use of hydrogen as a substance which maintains the same pressure in all parts of the absorption unit, so there are no high-low sides. The thermodynamic problem in operating a single pressure system as an air conditioner is that to handle the load, it must circulate such large amounts of refrigerant compared to the gas movement required in a refrigerator. As an example, a normal refrigerator circulates about 2 lbs of ammonia per hour. A 3-ton air conditioner would have to circulate 80 lbs per hour—and this at almost no head pressure, since the unit is a single-pressure system.

Such units have been built, and a ½-ton commercial air conditioner was available at one time. "But a 3-ton unit would have to weigh almost 3 tons to do the job," according to one authority. "At the present state of the art, it is unlikely that single-pressure absorption systems will be applied to practical air conditioning requirements."

Past Tech Center discussions have described the Bryant ammonia-water two-pressure system and the Arkla water-lithium bromide system, also two pressure. It is informative to compare the functioning of those systems with the following brief description of the Whirlpool refrigeration cycle.

Refrigeration is accomplished by application of heat energy to the absorption unit. The gases and liquids depend on the gravity-flow for circulation. Some coils have fins for more cooling surface area. Where counterflow tubes are in thermal contact, this is to increase efficiency by heat transfer. The complete cycle is as follows:

1. The gas burner applies proper heat input to the GENERATOR.

2. The liquid mixture of water and ammonia in the GENERATOR "percolates" (like liquid in coffeemaker) through a riser tube. Some liquid vaporizes. This gas is mostly ammonia because it has a lower boiling point than the water.

3. The hot gas just generated passes through a liquid mixture in the ANALYZER where the gas is cooled enough to remove its water content by liquefaction.

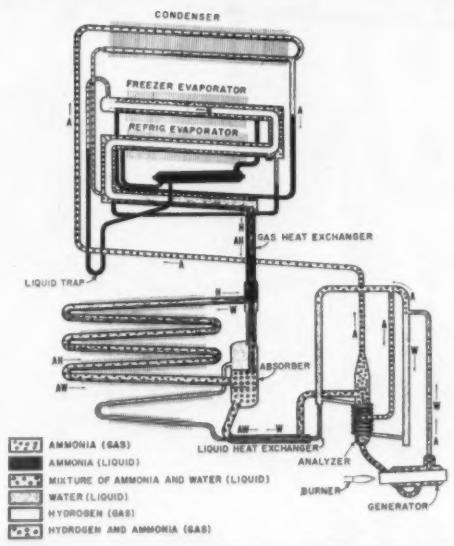
4. The ammonia gas now rises to the CONDENSER where it cools and, as it cools, the gas changes to liquid ammonia. This liquid flows to the lowest point of the CONDENSER, and drains out.

5. The ammonia liquid falls (because of gravity) to the FREEZER EVAPORATOR. In the FREEZER EVAPORATOR, the ammonia liquid is met by

(Continued on next page)

* * *

Absorption Refrigeration Unit



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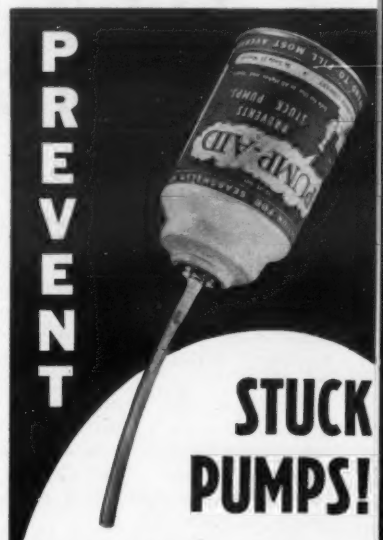

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(Continued from preceding page)
hydrogen gas. Hydrogen gas is introduced at this point and creates an atmosphere which causes the ammonia to evaporate rapidly. As the ammonia is evaporated, it absorbs heat from the freezer section of the refrigerator.

6. All of the ammonia does not evaporate in the FREEZER EVAPORATOR. The liquid that is left once again falls (by gravity), this time to the REFRIGERATOR EVAPORATOR. In this coil, evaporation takes place again and heat from the refrigerator section is absorbed.

7. The resulting gas mixture of hydrogen and ammonia leaves the evaporator coils carrying the heat it has absorbed from the refrigerator interior. It flows downward because it is heavier than the pure hydrogen entering the evaporator.

8. In the ABSORBER, the gas mixture of ammonia and hydrogen passes through several water falls. These falls are created by water that was percolated out of the GENERATOR and now is returning (to the GENERATOR). The ammonia is absorbed by the water and the liquid mixture flows back to the GENERATOR. Since the water already contains all the hydrogen it can hold, the light hydrogen gas is free to return to the evaporators.

9. The refrigeration cycle is a continuous process until the refrigerator section is cold enough. This is sensed by a thermostat which controls a gas valve and reduces the heat input. When this happens, only enough ammonia is generated to supply the FREEZER EVAPORATOR. The REFRIGERATOR EVAPORATOR takes this opportunity to defrost. The THERMOSTAT resets at 37° and increases the heat input.

10. Defrosting of the FREEZER EVAPORATOR is accomplished once each 24 hours. A LIQUID TRAP is located between the evaporator coils. The trap fills with ammonia during the refrigeration cycle. At 2 a.m. the timer (a 24-hour clock) energizes a heater on the DEFROST TRAP. The heater percolates liquid ammonia into the FREEZER EVAPORATOR. This hot ammonia overcomes the refrigeration being done and defrosts the coil. FREEZER EVAPORATOR defrosting is temperature or time terminated.

2 Firms Join ARW

CLEVELAND — Air Conditioning & Refrigeration Wholesalers has accepted two new members, announces E. S. Diggle, chairman of the membership committee.

They are Air Conditioning Supply Co. of Fort Worth, Texas represented by William F. Boyd, president; and Cooling and Heating Wholesalers of Lafayette, La., represented by R. C. Sealy (reinstated).

CRS Industries Names McMichael Sales Director

PHILADELPHIA — William C. McMichael has been appointed director of sales of CRS Industries Inc. here, a firm "specializing in Creative Research and Sales of products and systems for the control of air cleanliness and odors."

McMichael has a background of 16 years in sales consultation and management in the field of air conditioning. He previously served with Air Conditioning Associates, Inc., Philadelphia (Industrial Consultation Air Engineering), and was manager of the Cooling Div. for Bryant Air Conditioning Corp.

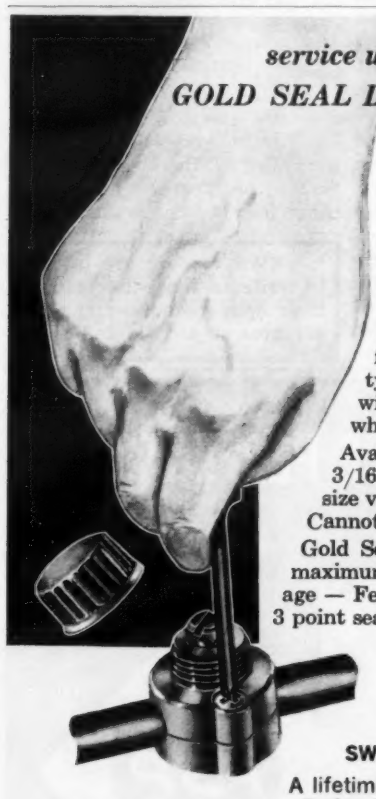
McMichael is developing a national sales and distributing organization for the Statronic Div. of CRS Industries, it was stated. He is currently handling the application and installation of the Statronic Dirt and Dust Control System on the ships of the Military Sea Transport Service (U.S. Navy) in the Atlantic and Pacific.

Tenney Ruler Shows 1959 ARDC Model Atmosphere Table

UNION, N. J.—Tenney Engineering, Inc. here, manufacturer of environmental equipment, has a 6-in. plastic ruler for engineers showing the new 1959 ARDC model atmosphere table with pressures and temperatures encountered at various altitudes up to two million feet.

It shows temperatures in Fahrenheit, and air pressure in mms and inches of Hg and also p.s.i.a. for altitudes from sea level to the 2 million mark.

service units on the job with
GOLD SEAL LINE TAP VALVES
by WATSCo



Gold Seal Line Tap Valves are designed to instantly pierce tubing to provide a permanent port for testing, charging, and discharging refrigeration lines. Easily fastens from the top with 2 Phillips type screws. May be installed without refrigerant loss even while unit is operating.

Available in 6 sizes ranging from 3/16″ O.D. to 5/8″ O.D. Each size valve conforms to the line—Cannot bend or crimp the tube.

Gold Seal Line Tap Valves offer maximum protection against leakage — Features Watsco's exclusive 3 point sealing.

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A lifetime tool designed to operate all size Line Tap Valves. Connects to Line Tap Valve without wrenches or special tools. The single port on the CV-1G is a connection for charging lines or gauges. The CV-2G has a double port which enables the user to connect a gauge and charging line to one or any number packaged refrigerant containers in series.

For additional information ask your wholesaler or write to Dept. N-19.

CV-1G CV-2G

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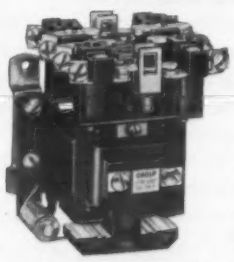

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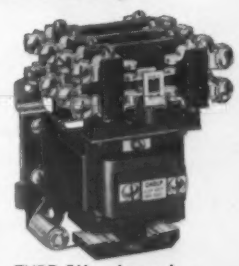

TYPE BX universal relay provides both normally open and normally closed contacts.

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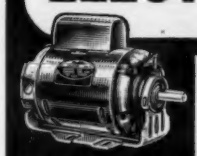

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DAVENPORT • 1215 E. River St.
DES MOINES 14 • 66 Washington Ave.
KANSAS
WICHITA 5 • 1201 N. Mosley St.
KENTUCKY
LOUISVILLE 3 • 120 S. 12th St.
LOUISIANA
NEW ORLEANS 25 • 4513 Eve St.
SHREVEPORT • 2031 Texas Ave.
MARYLAND
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BOSTON 35 • 84 Lincoln St.
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DETROIT 3 • 1701 E. Mc Nichols Rd.
GRAND RAPIDS 3 • 545 Grandville S.W.
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MINNEAPOLIS 4 • 1818-4th St. S.
MISSOURI
KANSAS CITY 8 • 1629 Broadway
ST. LOUIS 3 • 2110 Pine St.
NEBRASKA
OMAHA 2 • 1516 Webster St.
NEW JERSEY
NEWARK 2 • 355 Mulberry St.
NEW YORK
ALBANY 6 • 20 Colvin Ave.
BUFFALO 4 • 105 Ash St.
NEW YORK 13 • 533 Canal St.
ROCHESTER 4 • 42 Scio St.
SYRACUSE 6 • Tarbell Rd.
NORTH CAROLINA
CHARLOTTE 3 • 1216 S. Mint St.
OHIO
CINCINNATI 6 • 2400 May St.
CLEVELAND 14 • 2150 Hamilton Ave.
COLUMBUS 15 • 400 E. Livingston Ave.
DAYTON 2 • 222 Washington St.
TOLEDO 2 • 520 Southard St.
YOUNGSTOWN 2 • 16 Pyatt St.
OKLAHOMA
OKLAHOMA CITY 2 • 316 E. Grand Ave.
TULSA 19 • 1738 S. Boston Ave.
OREGON
PORTLAND 17 • 2410 N. Mississippi
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ALLENTOWN • 723 E. Green St.
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PROVIDENCE 5 • 236 Georgia Ave.
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KNOXVILLE 17 • 3528 Broadway N.E.
MEMPHIS 3 • 339 So. Front St.
NASHVILLE 4 • 210-17th Ave. N.
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DALLAS 10 • 2425 Ferris St.
EL PASO • 1100 E. Missouri St.
FT. WORTH 3 • 1119 W. 5th St.
HOUSTON 14 • 1409 St. Emanuel St.
SAN ANTONIO 2 • 608 E. Crockett St.
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SEATTLE 4 • 1001-9th Ave. S.
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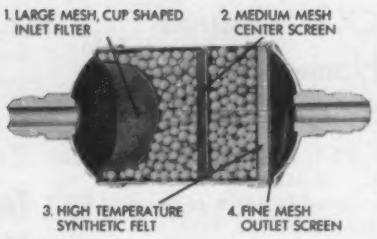
BULL DOG

ZONED FILTRATION

FILTER-DRIERS


1. LARGE MESH, CUP SHAPED INLET FILTER
2. MEDIUM MESH CENTER SCREEN
3. HIGH TEMPERATURE SYNTHETIC FELT
4. FINE MESH OUTLET SCREEN

* Retain More Dirt * Resist Plug-up * Retain More Moisture *

Retain more moisture because they are filled with pure desiccant - without the binders required for molded block type driers.....retain more dirt and resist plug up because four progressive areas of filtration eliminate "piling up" of dirt and eliminate refrigerant "channeling."

Bull Dog *Zoned Filtration* Filter-Driers are constructed of 100% 'work-horse' materials.....size-for-size and price-for-price, you cannot buy more drier!

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Now available in three complete series:
Silica Gel - Molecular Sieve
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Sizes through 50 H.P.

Driers - Receiver Driers - Receivers - Accumulator Driers - Accumulators - Suction Accumulators - Heat Exchangers - Mufflers - Capillary Strainers - Strainers Capillary Driers - Manifolds

REFRIGERATION RESEARCH
INCORPORATED
525 N. FIFTH STREET — BRIGHTON, MICHIGAN
THE "ORIGINAL EQUIPMENT" PARTS MANUFACTURER SINCE 1944

THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast

BUSINESS NEWS PUBLISHING CO., DETROIT

H & AC Assn. Starts Sales Training Drive

RALEIGH, N. C.—Following some years of study aimed primarily at helping contractors control costs, a new service intended to stimulate sales on the individual firm basis has been developed by Heating and Air Conditioning Research and Development Association, announces Dr. E. A. Fails, executive secretary.

Research work among firms in recent years has often revealed definitely inadequate salesmanship which usually was correlated with a low profit rate, while firms with the best trained salesmen generally showed the best profit rate, pointed out Dr. Fails, who is also professor of economics at North Carolina State college.

Citing a recent Dun & Bradstreet report published in the NEWS which listed inadequate sales as being responsible for 40.4% of business failures in this industry and competitive weaknesses responsible for 28.9% of the failures, Dr. Fails says the association's new program is designed to minimize both these factors.

Two major programs will be involved: (1) sales seminars, and (2) monthly mailings of reading material to individual firms.

The sales seminars are planned for centrally located cities in the Southeast and will feature lectures by reputable sales and public relations people, according to Dr. Fails.

Designed primarily as a follow-up to the seminars, the self-improvement mailing service will provide monthly mailings of booklets, books, copies of speeches, quotations, and special articles.

Samuel Schwartz Dies

NEW YORK CITY — Samuel Schwartz, 45, owner of Schwartz Air Conditioning Corp. here, died recently. He is survived by his wife and two children.

Prior to opening his own business a year and a half ago, he had been a salesman for William A. Schwartz & Son, air conditioning contractor.

2 Suburbs Join Detroit Reciprocal Code Plan

DETROIT—The city of Oak Park and the village of Grosse Pointe Shores have joined the Reciprocal Refrigeration Council for the Detroit area, Sam Schugar, secretary of the council, has announced.

Grosse Pointe Shores has also joined the Reciprocal Heating Council.

All members of the two councils use common refrigeration and heating codes and recognize as valid in their communities contractor licenses issued by other member communities.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

NEW 25 amp Contactor for Refrigeration, Air Conditioning and Heating...

This new Furnas 25 ampere contactor provides reliable, trouble-free operation required for unattended domestic and commercial applications. Rated to 25 amperes full load, to 150 amperes locked rotor for hermetic motors, to 3 hp 550 volts for general purpose motors, and to 25 amperes for resistance heating applications.

Furnas Features

- Compact unitized construction
- Front accessible terminals for straight through wiring
- 2 and 3 pole, 550 volts
- Visible silver-cadmium oxide contacts
- Encapsulated coil and magnet
- No-kiss potential
- Combination snap-on coil leads or pressure coil terminals

ACTUAL SIZE
CLASS 41 25 ampere, 2 and 3 pole

Original Equipment Manufacturers: write today for Bulletin 41-B4—prices upon request
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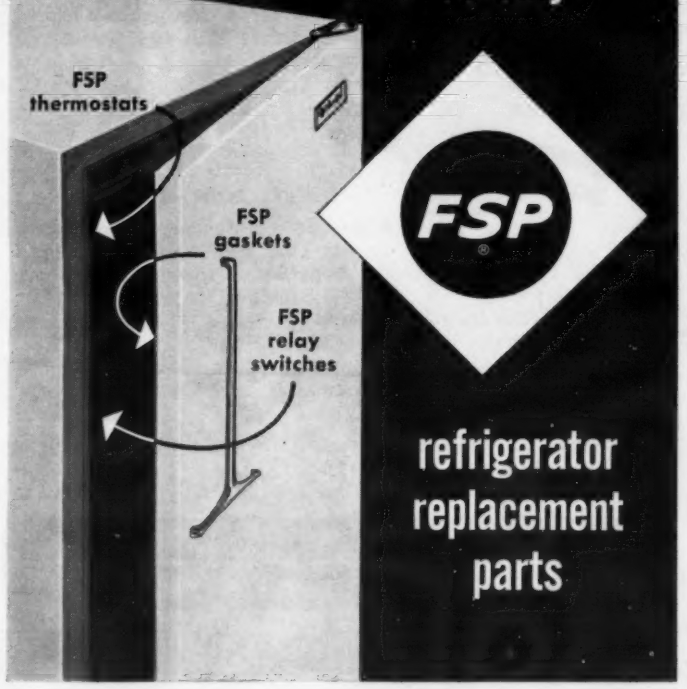
FURNAS ELECTRIC COMPANY
BATAVIA, ILLINOIS
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

"FOR SERVICE PERFECTION" use only



FSP parts for RCA WHIRLPOOL appliances cut service call backs!

The way to make *more* money on service is to minimize profit-eating call backs caused by failure of inferior replacement parts. FSP parts for RCA WHIRLPOOL home appliances are made to original specifications to fit right . . . function better . . . last longer. They're packaged to avoid dust, dirt and damage . . . and store easily. See your RCA WHIRLPOOL distributor.

Remember . . . the difference in original cost between FSP replacement and "no name" parts seldom amounts to more than pennies. But the gamble you take on a parts failure and resulting call back, when you use anything but FSP, can be very costly!

Factory Specification Parts for
RCA Whirlpool HOME APPLIANCES
meet the toughest specifications in the industry

Service Division, Whirlpool Corporation, St. Joseph, Michigan

Use of trademarks and RCA authorized by trademark owner Radio Corporation of America

Urge AGA--

(Continued from Page 1, Col. 5)

AGA to change their standard testing procedure to .20 in. and eliminate .12 and .15 in. for the smaller furnaces.

"This recommendation by the Better Heating & Cooling Bureau was affirmed at a meeting held in Detroit on Aug. 11 and endorsed by those in attendance."

There followed a list of names of representatives of nine furnace manufacturers, one blower manufacturer, four wholesalers, the Detroit office of the Federal Housing Administration, and the National Warm Air Heating & Air Conditioning Association.

Asher advised Meyer that BHCB had sent a memo to heating inspection departments of all municipalities and heating contractors in the Detroit area as well as local FHA and Veterans Administration offices advising them that the design of the distribution system must not exceed the capacity of the furnace.

This memo cited the static pressures at which AGA tests furnaces of various Btuh inputs. Then it said:

"Where a furnace is tested for operation at external static pressures in excess of those specified above, the static pressures at which the furnace has been tested shall be included on the rating plate or on a permanent plate adjacent to the rating plate.

"With these static pressures, the cfm is that obtained with an 85°F temperature rise.

"When designing a distributing system, the static pressure used for ratings should not be exceeded.

"This means that the most popular size unit, namely those used where heat losses are 80,000 Btuh or less, would be designed for .15 or .12 in. static pressures unless manufacturers have tested their units at other static pressures and other temperature rises and show these values on their rating plates.

"The enforcing bodies have no choice but to abide by rating data as it is stated on the rating plates."

AGA's Reply

In response to this request, W. B. Pizzini, assistant chief, standardization engineer at AGA laboratories, advised Asher that he would submit Asher's letter to the warm air furnace subcommittee at its next meeting.

"I am sure," he said, "that the proposal to eliminate the currently specified 0.12 and 0.15 external static pressures for furnaces having input ratings up to 100,000 Btuh will result in considerable discussion inasmuch as there apparently is considerable demand in the field for such units.

"Additionally, under the current requirements, approval may be obtained by a manufacturer for operation against a higher static pressure."

Pizzini further commented that "it would appear that essentially the problem presented is an installation problem and application of the proper furnace to each installation."

FTC Charges Nibco--

(Continued from Page 1, Col. 2)

anually, according to the commission.

Alleging violation of Sec. 5 of the FTC Act, Count I of the complaint charges that Nibco has established and maintains a policy whereby it fixes certain specified prices and discounts at which its products are to be resold by the manufacturer's representatives. These prices and discounts are disseminated by published price lists and other means, and the representatives are required to adhere to them.

A direct effect of this policy, the complaint alleges, has been to prevent the representatives from selling Nibco's products at prices either greater or less than those established by the company, even though the representatives may deem the higher or lower prices adequate or warranted by their respective selling costs and by trade and competitive conditions generally.

Count II of the complaint charges Nibco with paying promotional allowances to some of its customers but not making them available on proportionally equal terms to all other competing customers, as required by Sec. 2(d) of the Robinson-Patman Amendment to the Clayton Act.

For example, the complaint alleges, between September 1958 and June 1959, Nibco made discriminatory payments amounting to $2,500 to the American Radiator & Standard Sanitary Corp. for promoting Nibco's products through television programs sponsored by American-Standard in New Orleans and Pittsburgh trading areas.

Nibco is granted 30 days to file answer to the complaint.

Atlanta Group Elects Dodson

ATLANTA—Ralph C. Dodson, vice president of the Mechanical Contractors & Engineers, Inc., was elected president of the Mechanical Contractors Association of Atlanta, Inc., at the annual meeting.

7 sizes

Part No.	I.D.	O.D.
110	.031	.083
111	.036	.087
113	.044	.109
114	.050	.114
115	.055	.125
116	.064	.125
117	.070	.125

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Write for **FREE** *Cap Tube Conversion Chart*

Largest selection anywhere for
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All sizes on hand for immediate delivery from America's oldest and largest supplier of "in stock" capillary tubing. Available in tagged, random 100' coils. All tubing drawn to closest tolerance.

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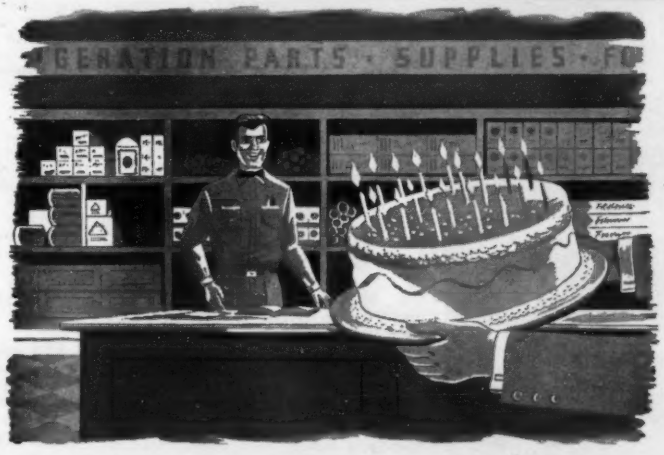
SALUTE to the SUPPLIES WHOLESALER



Buying or Selling . . . it's difficult to get along without the Supplies Wholesaler!

The October 3, 1960 issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS will be a "Salute to the Supplies Wholesaler."

The topics at right—plus many others—will be thoroughly and competently covered in this issue in commemoration of the 25th anniversary of the founding of the supplies wholesaler organization.

See the October 3rd issue of the NEWS for all the up-to-date answers!

- ★ How wholesalers help their customers.
- ★ How the wholesaler's services to the industry have changed.
- ★ Why leading manufacturers utilize wholesaler distribution.
- ★ Where wholesalers fit in the industry's future.
- ★ How many wholesalers of what types are there.
- ★ The wholesaler's problems today.

Advertisers! Here's an opportunity to present your products and organization . . . to salute and graphically identify your top wholesalers with pictures and listings . . . through real "where-to-buy-it" advertising. Regular rates apply. See your local NEWS representative for complete details. Closing date: September 21, 1960.

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450 WEST FORT STREET, DETROIT 26, MICHIGAN
NEW YORK: .....521 Fifth Avenue, MUrray Hill 2-1928-9.
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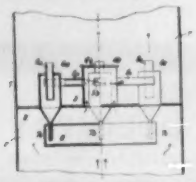
Reaching these MARKETS	Serving these FIELDS
• Air Conditioning	• Residential
• Heating	• Commercial
• Refrigeration	• Industrial

PATENTS

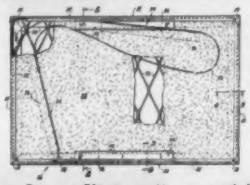
Week of May 17 (Concluded)

2,936,852. DEVICE FOR REMOVING DUST AND LIQUID PARTICLES FROM GASES. Otto Oppenbecke, Dusseldorf, Germany, assignor to Didier-Werke A.G., Wiesbaden, Germany, a corporation of Germany.



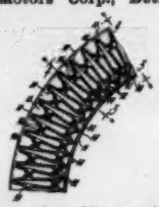
1. In a duct carrying a stream of moisture-laden gas to be purified, in combination, a transverse partition subdividing said duct into an upstream compartment and a downstream compartment; a distributing cylinder of substantially smaller cross-sectional area than said duct supported on said partition in said downstream compartment, said partition having an aperture connecting the interior of said cylinder with said upstream compartment; a plurality of cyclone separators mounted on said partition externally of said cylinder....

2,936,854. FILTER. James L. Lucas, Charlotte, N. C., assignor to George K. Le Brun and Aubrey H. Terrell, both of Bethesda, Md.



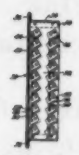
1. In a filter unit comprising a rectangular frame having channel-shaped sides and ends secured together to define a shallow box, having an open top and bottom, a foraminous filter supporting member secured to the bottom of the box, a sheet of filter medium covering the foraminous member and having marginal portions disposed in the channel-shaped sides, the improvement comprising a resilient endless retainer removably engaging the filter medium in the channel-shaped sides and conforming to the shape of the frame, and oppositely spaced relatively rigid elongated handle-forming members secured to said band for removably interlocking same within the channel-shaped sides of the filter frame. . . .

2,936,855. PLEATED FILTER AND MECHANISM FOR FORMING SAME. Lloyd G. Allen and Donald A. McMillan, Saginaw, Mich., assignors to General Motors Corp., Detroit, Mich.



1. An annular filter unit comprising, parallel spaced annular end walls, an inner peripheral screen and an outer peripheral screen connecting said end walls to form an annular chamber, and a pleated annular filter element mounted in said chamber, said filter element having radially extending pleats in evenly spaced relation, said pleats each comprising two sides and an arcuate interconnecting fold and being interconnected with one side of each adjacent pleat by an arcuate connecting fold. . . .

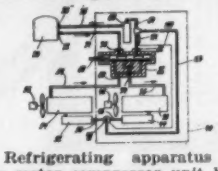
2,936,874. WEATHERPROOF OUTSIDE AIR INTAKE LOUVER UNIT. Henry C. Bierwirth, Marshalltown, and Norman L. Rutgers, Des Moines, Iowa, assignors to Lennox Industries, Inc.



1. A weatherproof outside air intake louver unit for high velocity air flow, comprising a unitary housing adapted to be inserted within an opening in an outside wall of a building, said housing having a peripherally continuous side wall integrally terminating at its front end in a transversely outwardly extending face flange defining an inlet opening and terminating at its rear end in a peripheral edge defining a discharge opening, a plurality of identical longitudinally elongated louvers horizontally disposed within said housing in a first row adjacent said inlet opening and a second row adjacent said discharge opening, the louvers of each row being in vertical alignment one above the other in a plane parallel to said inlet opening, each louver of one row being in horizontal alignment with a corresponding louver of the other row. . . .

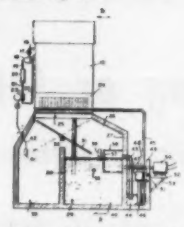
Week of May 24

2,937,505. REVERSIBLE REFRIGERATING SYSTEM. Richard L. Merrell, Royal Oak, Mich., assignor to General Motors Corp., Detroit.



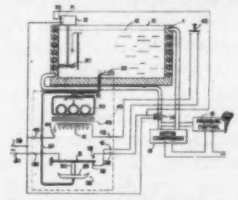
1. Refrigerating apparatus including a motor compressor unit having a suction inlet and a discharge outlet, first and second heat transfer units each having two fluid terminals, a two-way thermostatic refrigerant expansion valve connecting in a single series circuit one terminal of each of the heat transfer units to provide a single series connection for flow in either direction between said heat transfer units, a reversing valve providing alternate connections between the other terminals of said heat transfer units and said inlet and outlet of said compressor unit, said expansion valve including a thermostatic bulb mounted in heat exchange relation with the connection between said reversing valve and said compressor inlet. . . .

2,937,508. REFRIGERATION. Milton W. Garland, Waynesboro, Pa., assignor, by mesne assignments, to Frick Co., Waynesboro, Pa.



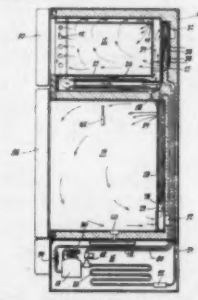
1. A refrigeration system comprising an ice maker, wall structure defining a chamber into which ice from said ice maker is discharged, said chamber having a liquid compartment and an ice storage compartment, means for circulating overflow liquid from said liquid compartment to said ice maker, means responsive to the accumulation of ice in said liquid compartment for selectively directing ice from said ice maker into either of said compartments, and means responsive to the accumulation of ice in said ice storage compartment for controlling the operation of said ice maker....

2,937,509. CONTROL APPARATUS. Marvin E. Russell, St. Louis Park, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



4. In a temperature control device, a controller, a sensing bulb, a tube connecting said bulb to said controller to make up a fluid filled system so that upon said fluid expanding in said system as the temperature of said bulb increases said controller will operate when said temperature is above a predetermined temperature, and means for selectively inducing a current in a portion of said tube so that the heat developed therefrom will increase the temperature of the fluid to cause said controller to operate when said bulb temperature is below said predetermined temperature. . . .

2,937,511. MULTIPLE TEMPERATURE REFRIGERATING APPARATUS. Leonard J. Mann, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



1. In combination: a refrigerator having a first compartment to be maintained at a temperature below 32° F. and a second compartment to be maintained at a refrigerating temperature above 32° F.; a casing surrounding a major portion of said first compart-

This single compact kit

HAS EVERYTHING YOU NEED!

- to install...
- service...
- find and fix leaks

$43.00 complete

PREST-O-LITE
Refrigeration and Air Conditioning Outfit

...includes three interchangeable open-flame stems, to give you just the right air-acetylene flame to solder, braze, or heat. Sensitive leak detector stem fits same torch handle, pinpoints tiniest halide gas leaks—as little as 100 parts in 1,000,000 parts air. Better than using soapy water!

Includes adjustable gas pressure regulator, torch handle and hose. Entire outfit in sturdy carrying case. Try it. See your supplier of LINDE products today. Or write Dept. 626 LINDE COMPANY, Division of Union Carbide Corporation, 270 Park Ave., N.Y. 17, N.Y.

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ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

TRAINEE: REFRIGERATION and air conditioning work with Refrigeration company in the midwest. Graduate of Utilities Engineering Institute of Chicago. Write BOX 241, Algona, Iowa.

MANUFACTURER'S AGENT now servicing Texas heating and air conditioning OEM trade to represent supplier of specialty seals and filter media. Company now supplies major accounts in this industry, desires Texas coverage. Replies confidential. BOX A6623, Air Conditioning, Heating & Refrigeration News.

MANAGEMENT POSITION (regional, national, or international) field engineering, service, application engineering, engineering training, for a manufacturer of Heat Pump, air conditioning and forced warm air furnace equipment or for a utility or other organizations engaged in the sales & service of such equipment. Twenty years experience supervising field engineering (service), installation, maintenance, lay out and project personnel plus initiating training programs and follow through for distributors and utilities, nationwide. Familiar with writing application, installation and air distribution manuals, plus service analysis and field bulletins. Have ability to work congenially with people, obtaining utmost from personnel. Accustomed to handling large groups of employees. Write BOX A6624, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

SERVICEMAN: COMMERCIAL refrigeration and air conditioning mechanic needed. Guaranteed forty hours per week year-round, no lay-offs. Paid vacations, other benefits. In letter state age, full experience, etc. B. L. DAWSON COMPANY, 425 Clark Street, Middletown, Ohio.

WHOLESALE SALESMAN Carrier distributor has opportunity for experienced wholesale salesman qualified to accept responsibility for dealer relations in established territory selling full line of packaged and applied air conditioning equipment, furnaces, and room air conditioners. Send complete resume, recent photograph, and income requirements to REFRIGERATION SALES CORP., 701 St. Clair Avenue N.E., Cleveland 14, Ohio.

MANUFACTURERS' AGENTS — To handle a complete line of commercial refrigeration, air conditioning and heating coils of a nationally known manufacturer in business over 50 years to be sold to OEM accounts and wholesalers. Excellent commissions. Territories available are: 1. Kansas, Oklahoma, Missouri, Iowa and Nebraska; 2. Tennessee, Louisiana, Mississippi, Alabama and Georgia; 3. Colorado, New Mexico, Arizona and Utah. Send resume' and lines now carried to: BOX A6615, Air Conditioning, Heating & Refrigeration News.

MANUFACTURERS' AGENTS wanted! Broad line commercial and residential packaged air conditioning, refrigeration, gas and oil fired furnaces and boilers. Liberal arrangement. Full line and prompt shipment assures good earnings to top flight men. Several areas open. Write fully, area covered, lines now handled, etc. BOX A6616, Air Conditioning, Heating & Refrigeration News.

WANT GOOD service manager in Los Angeles area who is ready to run his own service operation. Will turn over service end of air conditioning sales and contracting business on lease, sale, or other reasonable basis. BOX A6621, Air Conditioning, Heating & Refrigeration News.

AIR CONDITIONING Sales Engineer fully qualified for residential, commercial and industrial applications. Outstanding advantage for right man with leading contractor in Miami area. Commission, expenses, and bonus arrangement. Send complete resume with recent photo. Write BOX A6622, Air Conditioning, Heating & Refrigeration News.

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NOTICE: DISTRIBUTORS, dealers, servicemen, users refrigeration equipment—repair parts available all models Baker ammonia and Freon compressors. Also models 6B and F6B ammonia compressors. We are exclusive Baker export sales office. Manufacturers' export agents refrigeration, air conditioning, and allied equipment. THE KEISER COMPANY, 7651 South Ashland Avenue, Chicago, Illinois.

FOR SALE Westinghouse compressor unit 25 h.p.—CLS 108 - 208 volts—style 56A1631G11— Brand new never uncrated— Original cost $2435— Any reasonable offer considered. PEPPERELL MANUFACTURING COMPANY, 120 West 42nd Street, New York 18, New York.

ATTENTION REFRIGERATION Servicemen. Send for catalog listing values in refrigeration and air conditioning parts, relays, capacitors, compressors. Savings up to 50%. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

BUSINESS OPPORTUNITIES

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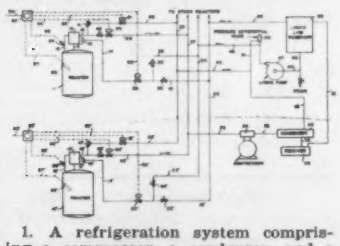
COMMERCIAL REFRIGERATION — Home appliance sales and service business. Selling due to other interests. Well established. Southwest mountains, resort-commercial area. Plenty business, ideal climate, low overhead. Books open. At Inventory. No blue sky. Description, pictures on request. Experience advisable. Cash deal. BOX A6619, Air Conditioning, Heating & Refrigeration News.

FOR SALE—Going refrigeration business in Lassen County, California with spacious amount of land. Resort country. Many large towns and cities to draw from. A big future for the right man. Owner selling because of age and health. Price for 5 room furnished home and all property $16,500. Large garage for shop and equipment. BOX A6620, Air Conditioning, Heating & Refrigeration News.

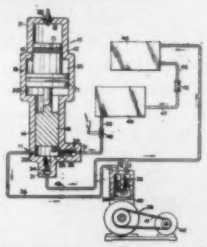
ment and having an air inlet and an air outlet from said first compartment; a refrigerating system having a refrigerant liquefier and refrigerant evaporator means. . . .

2,937,512. CONTROL OF APPARATUS OPERATING AT HIGH AND LOW TEMPERATURES. Joseph A. Etter, Cincinnati, Ohio, assignor, by mesne assignments, to Frick Co., Waynesboro, Pa.



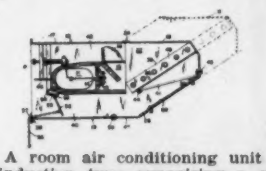
1. A refrigeration system comprising a compressor, a condenser, and a pair of evaporators, said evaporators being operable at temperatures which vary from below the condensing temperature of the condenser to above the condensing temperature, refrigerant supply means for connecting said evaporators selectively to said condenser through a first connection or through a second connection, means in said second connection for increasing the pressure of the refrigerant supplied and refrigerant return means for connecting said evaporators selectively to said compressor or to said condenser. . . .

2,937,513. FREE-PISTON ENGINE COMPRESSOR. Joseph H. McNinch, Jr., and Rollin J. McCrory, both of Columbus, Ohio assignors, by mesne assignments, to The Battelle Development Corp., Columbus, Ohio, a corporation of Delaware.



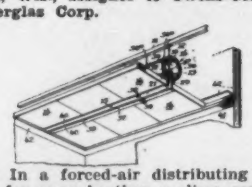
2. A compressed-gas refrigeration apparatus, comprising: a refrigeration gas compressor integrally connected to and driven by a free-piston internal-combustion engine; a condenser in communication with the discharge of said compressor; an expansion valve connected to the outlet from condenser; an evaporator connected to said expansion valve; communication means between said evaporator and the inlet to the compression chamber of said compressor; a valve in said communication means; pressure-reducing means in communication with said compression chamber; and means operatively connected to said valve and said pressure-reducing means, to operate said pressure-reducing means followed by said valve sequentially, to start said engine. . . .

2,937,588. AIR CONDITIONING UNIT. William Masin, Bayside, and Irving P. Pearson, New York, N. Y., assignors to Carrier Corp., Syracuse, N. Y.



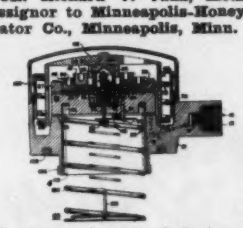
1. A room air conditioning unit of the induction type comprising a casing having a top, a bottom and side walls, one end of the casing being closed by an end wall having upper and lower removable portions and the other end of the casing being open so as to communicate with the room to be air conditioned, a plenum chamber mounted in said casing adjacent said open end intermediate the top and bottom of the casing and extending from side wall to side wall, said plenum chamber serving to separate the casing into an air intake chamber and an air discharge chamber, said plenum chamber being spaced from the closed end of the casing to form a passageway between the intake and discharge chamber, an opening in a side wall in communication with said plenum chamber adapted to communicate with a source of primary air. . . .

2,937,589. CEILING AIR FLOW ARRANGEMENT. Joel R. Bachlin, Brookfield, Wis., assignor to Owens-Corning Fiberglas Corp.



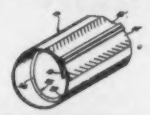
1. In a forced-air distributing system for room heating, cooling, ventilation and the like, an elongated air distributing channel, said channel having side walls provided with spaced marginal apertures along the length of the upper portion thereof and defining a downwardly facing channel opening, means for supporting said channel open side downward beneath the ceiling of a room. . . .

2,937,655. PNEUMATIC CONTROL DEVICE. Richard V. Vana, Medinah, Ill., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



2. A pneumatic control device comprising, a base structure including a recess therein, a diaphragm positioned over said recess to provide therebetween a pilot chamber variable in volume with movement of the diaphragm. . . .

2,937,664. SELF-SUPPORTING FLEXIBLE DUCTING. Walter A. Plummer, 13071 Dickens St., North Hollywood, Calif.



1. Flexible self-supporting ducting adapted to be disassembled for shipping flat and to be assembled into ducting at the point of use, said ducting comprising a thin body of flexible sheet plastic having interfitting tongues and grooves separably interlockable to form a duct and extending longitudinally along its lateral edges and including an integral flap underlying said tongues and grooves in the assembled position of said tongues and grooves....

(To Be Continued)

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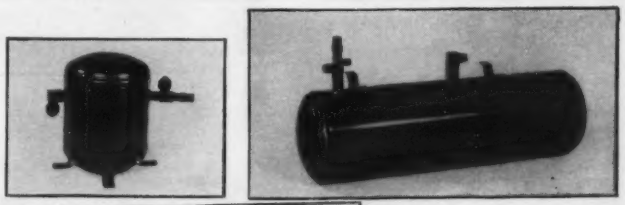

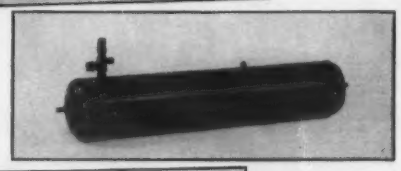

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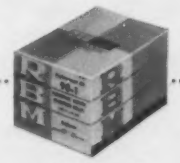

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G-E Div. Names J. J. Slattery to Research Post

LOUISVILLE, Ky.—Appointment of James J. Slattery as manager of consumer research for the household refrigerator department of General Electric's Major Appliance Div., has been announced by William P. Von Behren, general manager of the department.

Slattery had been marketing manager for the refrigerator department, and named to succeed him in that post is John F. McBride, formerly marketing manager of the electric range department, it was also announced.

Von Behren stated that current marketing conditions in the refrigerator field have called for a greater concentration on consumer research, and the need for an experienced marketing executive to head up this activity. Slattery had been marketing manager of the department since 1953.

McBride is a veteran G-E appliance sales executive, having been with the company for 31 years. At one time he was marketing manager for the Major Appliance Div., and when the various departments became more autonomous in their operations, he became marketing manager on ranges.

York Name--

(Continued from Page 1, Col. 5)

Attorneys for Borg-Warner Corp. said that after the signing of the order Sept. 14 the decision would undoubtedly be appealed to a higher court. Borg-Warner had brought the original suit (the decision for Borg-Warner was on a countersuit) to clear up confusion over the use of the name York, and the attorneys stated that "we obviously would not have brought suit if we were not sure of the merits of the case."

When some final judicial decision is reached, observers see the need for clarification of just what is meant by furnaces and heating products (will it include heat pumps, or electric furnaces, or types of products made by one manufacturer and not the others?).

In his conclusions of law, Judge Igoe stated:

"As a result of the plaintiff's (Borg-Warner) advertising and use of York for furnace and heating products, the defendant (York-Shipley) has lost sales and dealers, and the defendant has been unable to sustain, develop, and expand its dealer and distributorship organization, and the defendant, the trade, and the purchasing public have been greatly and irreparably damaged and will continue to be so damaged unless the plaintiff is restrained by this court."

E. J. Frische Dies

TOLEDO — Edmond J. Frische, 58, a partner in the Frische-Mullin Co., heating and air conditioning contractor, died Aug. 29.

Frigidaire Recalling 350

DAYTON, Sept. 8—Frigidaire Div. of General Motors today reported that it is recalling to work some 350 production employes.

Herman Lehman, G-M vice president and Frigidaire general manager, said the decision to increase the work force was based on reduced inventory levels and a changeover to 1961 model appliances.

Lehman stated that Frigidaire sales in August were somewhat better than anticipated, but that the appliance business generally has shown no marked evidence of improvement. However, he said that introduction of new lines of Frigidaire room air conditioners and household refrigerators and food freezers in October, plus a broad new promotion campaign, holds promise for increased sales in the coming months.

Noland Builds New Decatur, Ala. Facility

DECATUR, Ala. — A new $200,000 facility will be built here by the Noland Co., independent distributor of plumbing and heating equipment.

J. S. Stutts, manager of Noland's Decatur branch, said the first step had been completed, purchase of a 1.5 acre tract on Church and Wilson Sts.

On the site, according to Stuts, Noland plans a building that will combine warehouse, showroom, and office facilities, with surrounding space for parking and trucking movement.

Cafe Owner Dies In Walk-In Cooler with Door 'That Couldn't Be Closed from Inside'

PORTLAND, Ore. — A walk-in cooler door that "couldn't be closed from the inside" did last month and cost Martin J. Becker, owner of the Arrow Cafe here, his life.

Becker was alone in his cafe after closing time when he became trapped in the cooler. When he was discovered the next morning, he was dead.

In his efforts to avoid freezing, Becker had broken the methyl chloride refrigerant lines inside the refrigerator. Apparently realizing his mistake immediately, he attempted to crimp the the lines closed again with a canned ham.

He also used the canned ham in an effort to batter his way through the side of the cooler.

Cafe employes said that the broken inside safety latch on the door had been removed eight months before. It was never replaced because the door was never closed when anyone was inside. It had to be forcibly leaned on to close it from the outside, they noted.

How Becker closed the door —if he did—remains a mystery.

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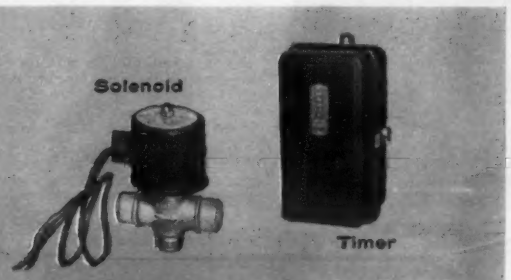

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